

WORKING DOCUMENT

December 18, 2003

TO: Committee Members

FROM: Geert Molenberghs, Chair and Marie Davidian, Co-Chair

RE: *Ad-Hoc* Strategic Plan Committee

In this document, we first provide an overview of a number of procedural matters, as well as of the remit of the committee. Thereafter, a synthesis is provided based on input from the face-to-face meeting of the Committee at the IBC2002 in Freiburg (Germany), written input by members that could not be present at this meeting (Marie Davidian and Laurence Freedman in particular), the Executive Committee meeting in March 2003, during the ENAR Spring Meeting in Tampa, Florida (USA). Later, written input by the members has been received and a finalized version is circulated in August 2003 to the Strategic Plan Committee, the Executive Committee, and Council.

Extension of Assignment

Within the Executive Committee of the International Biometric Society, a number of issues are put forward that are relevant for the future of our Society on the one hand and the future of the profession in a rapidly changing environment, amidst newly emerging scientific fields, on the other hand.

The President has asked the General Secretary to propose a composition of an *ad-hoc* committee (cf. Bylaw 8.3) together with its task description.

The Executive Committee wishes to compose this and perhaps other committees as much as possible based on Council members. Council has been elected by the membership and has expressed the desire to be actively involved in the decision making process.

Committee

Original Committee Members

- Geert Molenberghs (Belgian, Chair)
- Marie Davidian (ENAR, Co-Chair)
- Clarice G.B. Demétrio (Brazilian Region)
- Laurence Freedman (EMR)
- Andrew Mead (British Region)
- Laura Pla (Central America and Caribbean Region)
- Byung-Soo Kim (Korean Region)
- Sagary Nokoe (Group Nigeria)

- Iris Pigeot (German Region)
- Walt Piegorsch (ENAR)
- Jane Hutton (British Region, Chair of Education Committee).

Proposed Extension of Committee

After discussion in Freiburg, Council Circular and Ballot 2002/03 proposes an extension of the Committee.

For reasons of symmetry, it is entirely appropriate to include the chair of the Finance Committee, Jessica Utts (WNAR), to the Committee. The President, Norman Breslow, is added, ex-officio. Finally, to ensure the widest geographical spread, Guadalupe Gomez i Melis (Spanish Region) is added to the Committee.

In summary,

- Jessica Utts (WNAR, Chair of the Finance Committee)
- Norman Breslow (WNAR, IBS President)
- Guadalupe Gomez i Melis (Spanish Region)

Given the potentially wide-ranging impact of the conclusions of the committee, it was decided to continuously keep the Executive Committee informed.

Assignment of the Committee

Original Assignment

1. **Membership benefits.** What membership benefits can be offered over and above what is offered now? This may be related to services offered by the publisher of *Biometrics*. The way in which the Society organizes its administration is an integral component of this debate. Hence, the next topic.
2. **Central collection of dues.** The pros and cons of offering central dues collection (i.e., centralizing administrative tasks for the regions that are interested) need to be discussed.
3. **Strategic view on the profession in a rapidly changing environment.** The position of biometricians and biostatisticians has never been evident. Regarded by many as purely service oriented, the profession has had to fight for recognition as a proper scientific discipline. This has been successful to variable degrees in different parts of the world. Former “Divisions of Biostatistics” have become “Departments of Biostatistical Science”. However, these successes are overshadowed by a general threat coming from, admittedly, fascinating new scientific opportunities (in computer science on the one hand and as a result of the genetic revolution on the other hand) where such fields as data mining and bioinformatics tend to exclude biostatisticians and biometricians. While this is thought is not encouraging for our profession, it is problematic from a scientific point of view. Even though at many regional meetings (ENAR, German, French, Brazilian, EMR, etc.) there is a lot of attention for statistical aspects of microarray data analysis, statistical genetics, bioinformatics, etc. Many of us face a difficult fight in our home institutions. This suggests the Regions but, even more so, the Society, should take an active role in identifying ways to increase our profile. An important asset of biometricians and biostatisticians is a long tradition of collaborative research. Whereas this was

regarded “second class” relative to the “pure” scientists over a decade ago, interdisciplinary and multidisciplinary skills are considered indispensable in present times.

- 4. Education.** Education is an integral component of increasing the profession’s profile. While in several regions master and PhD level education in biometry and biostatistics is provided at high levels, there are several parts of the world where statisticians have to fight hard to have their discipline recognized as one deserving proper specialized education. Also here, the Society can build a strategy and use its authority to foster educational programs, whether nationally or internationally conceived.

Since this aspect of the committee’s assignment has a close connection to the mission of the *Standing Education Committee*, it is important that a coordinating effort between both committees take place. To this end, the Chair of the Education Committee, Jane Hutton, is asked to be a member of the Strategic Plan Committee. Ideally, all output regarding education (proposals, sections/paragraphs of the Strategic Plan), ought to be approved by both committees.

As an outgrowth of the committee’s mission, the very definition of the remit of the Education Committee and of the Award Fund Committee is being discussed and recommendations are being made to this effect.

- 5. Increase of membership.** It is vital for the Society’s professional and financial health to increase membership in all parts of the world. There seems to be an important and obvious potential in those regions where IBS is either predominantly medical or non-medical. For example, in many European Regions, medical statisticians (especially those in industry) are member of ISCB (which is a good thing) but not of IBS. Also, adjacent fields (e.g., epidemiology) are not as fully represented as ought to be. Finally, newly emerging fields such as bioinformatics, data mining, are obvious professional groups we could target.

Extension of Assignment

The President has requested an extension of the assignment of the Committee with two important items.

- 6. The consideration of a so-called President Nominating Committee.** It appears that the current system, whereby Regions propose names for Executive Committee Members (i.e., Vice-President/President, General Secretary, Treasurer), is too vulnerable.

The actual recommendation refers to a General Officer Nominating Committee (GONC).

- 7. Actions to be taken to improve the financial situation of the Society.**

Procedure, Deliverables, Timeline

After the meeting in Freiburg, further (email-based) discussions took place. The Committee was expected to present a report, i.e., a *Strategic Plan*, to the Executive Committee and to Council before the end of the year 2002. The report was to be drafted by Chair and Co-chair of the Committee. Each of the 5+2 assignments needs to be discussed in such a Plan, including a statement of the issue(s), a view, the principles for action and a list of action points, made as concrete and precise as possible.

The Committee could add additional topics, if deemed appropriate. After discussion within the Strategic Plan Committee, the Executive Committee, and Council, the plan is to be finalized and presented to Council for approval. At that point, the task of the *Strategic Plan Committee* in the constitution described earlier is finished.

For a variety of reasons, the original timeline had to be expanded. First, it was considered important to study the impact of the new central web-based database system on the strategic plan of the Society. Second, the transition to the new Blackwell-based setup for *Biometrics* was awaited. Third, input from the face-to-face Executive Committee Meeting of IBS (Tampa, FL, March 31, 2003), including Vice-President Rob Kempton, has been factored in.

As stated earlier, we have had input on each of the assignment from the face-to-face meeting in Freiburg, July 26, 2002, as well as, in writing, from Marie Davidian (ENAR, Co-Chair) and Laurence Freedman (EMR).

Attendance of the meeting in Freiburg: Norman Breslow (WNAR), Jane Hutton (British Region, Education Committee), Byung-Soo Kim (Korean Region), Andrew Mead (British Region), Geert Molenberghs (Belgian Region, Chair), Laura Pla (Central America and Caribbean Region) , Iris Pigeot (German Region), Claire Shanley (Executive Director).

There has been input from the Executive Committee at the occasion of their face-to-face meeting in Tampa, with Norman Breslow (President), Rob Kempton (Vice-President), Geert Molenberghs (General Secretary and Chair of the Committee), Marie Davidian (Editorial Representative and Co-Chair of the Committee), and Claire Shanley (Executive Director).

After this meeting, the updated text has been circulated among the members of the committee for feedback. A new draft is circulated among Strategic Plan Committee Members, Executive Committee Members, and Council Members. The draft contains a separate list of recommendations and proposed actions. After input from the various Committees, the action points that require legislative work will be proposed to Council for ratification.

Introduction

Our discipline is known under the names statistics, biometry, biostatistics, etc. We view all of these names as directed at the same general enterprise of the use and development of statistical theory and methods to address design, analysis, and interpretation of information in the biological sciences. Whatever it is called, our profession clearly is at a critical juncture. Our work has always been and continues to be of great importance in the conduct of scientific investigations in agriculture, life sciences in general, ecology, forestry, medicine, public health, and host of other endeavors. However, with perhaps a few exceptions, our field overall has not enjoyed the recognition it richly deserves as a fundamental cog in the wheel of scientific inquiry, neither among subject-matter scientists nor government officials nor the general public. This has never been more pressing than in current times, with advances in technology that have allowed amazing amounts of information to be collected and stored and with an increasingly complex health-care and public health landscape associated with dizzying arrays of new pharmaceutical products and medical procedures and growing interest among the public in assessing their risks and benefits.

Personal experiences of many of us, collaborating with scientists in agriculture and life sciences and with physicians, and observing the role of our discipline in public life, have often been very rewarding but sometimes been disheartening. Let us first describe the problem as it often is bound to occur in our profession, and then switch to some successful models. Although some investigators have greatly appreciated our contributions, others tend to view statisticians as, at best, “staff” who know how to run software, “secretaries that are able to count”. Our profession tends to attract a number of individuals with an attitude that is, with the best of intentions, too service oriented. Some of us have been told that “it is not our policy to have statisticians as co-authors”, by horticulturalists, entomologists, and crop scientists (after designing the study, analyzing the data, and writing the statistical section of the journal article); and have argued with physician colleagues about issues such as adjusting for post-randomization covariates, using longitudinal data methods to analyze longitudinal data (rather than comparing means at each time point separately: “we could never get that kind of analysis published”), and so on. In many of these situations, our expertise has been all but ignored as irrelevant. In the media, it is rare to see a statistician interviewed to explain what are essentially statistical issues; the media would rather solicit opinions from “the real scientists”, resulting in pronouncements from, for example, physicians on popular news shows that are inaccurate or downright misleading. The impressions of many non-statistician acquaintances about the role of statistics in public policy and scientific inquiry range from woefully naive to complete ignorance. This scenario is not one of success and certainly not one that will lead to continuity. In fact, departments where such an attitude is dominantly present may well be bound to disappear.

One very important way for a statistician to counteract this attitude is by becoming an expert, or at least quite knowledgeable, in the subject matter area within which we are working. By combining statistical reasoning with knowledge of the real scientific problems, statisticians can and have made high profile contributions both to the science and to the policy. Important examples are Fred Mosteller, John Tukey, Sir David Cox, Lincoln Moses (incidentally the first four winners of the Marvin Zelen Leadership Award), Nick Day, Richard Peto, Klaus Dietz, and Martin Gardner. Further, we have to teach our colleagues from substantive areas what our contributions are to the big picture. This needs to be done over and over again, every time we start working with a new colleague. It is never taken for granted. Applied statistics is, at best, an acquired taste to those we

work with. Those to whom it is love at first sight are likely to be found in the profession already. Related to this, we need to become better, as a profession, at explaining the statistical methods we use in less technical language.

As *the* international scientific Society dedicated to our field, we believe we are in a unique position to address the challenge of enhancing understanding of and appreciation for our contributions and expertise among scientists and the public alike and have a greater role in public discourse where interpretation of information is a key aspect. Never has this been more important than with the explosion of data collection in areas like genomics, medical imaging, environmental and bioterrorism surveillance, and a host of other areas; with the increasing reliance on sophisticated mathematical modeling to explain biological phenomena; and with the increasing public focus on displaying “statistics” at every turn and disseminating results of studies such as those on mammography and hormone replacement therapy. Computer scientists, applied mathematicians, physicists, and others are claiming these areas, in many cases “reinventing the wheel” or, worse, using inappropriate approaches. It is our belief that we have a fundamental responsibility as a Society to undertake this challenge. We believe that all statistically oriented societies, not just IBS, have tended in the past to look inward rather than outward, and we have neglected to capitalize sufficiently on the potential role we could have in educating domain scientists and the public on the importance of our discipline in all aspects of modern life.

To be most effective at taking on this monumental task, it is essential that the society run in a way that is most beneficial to its members. If the society internally is healthy, can offer its members ways to enhance professional development (which it, as a whole, does not at this point, even though professional development facilities are provided by some of our larger Regions), and serve as a focal point for members to feel an involvement and stake in the profession that goes beyond their immediate positions, then it will be well-poised to look outward to this challenge. And, conversely, by addressing this challenge, the Society can enhance the recognition and respect due its members in their home institutions and countries. Thus, we are convinced that issues affecting the future of the workings of the Society and the future of the profession are inextricably linked.

These remarks may seem somewhat confrontational but we believe it is crucial to acknowledge and confront these issues openly and use them as impetus to move the Society forward in a way that will best benefit its members.

All of these comments are highly relevant for the strategic scientific view the Society takes towards the future, how and which type of new members are going to be attracted, and what benefits, including education, are going to be provided. In particular, there could be implications on the view of how our flagship journal, *Biometrics*, is going to position itself. In the following sections, we will analyze various aspects of the Society’s life and propose strategic actions based there upon.

1. Membership Benefits

Major, current benefits to members now in place include *Biometrics*, *Biometric Bulletin*, and the biannual *International Biometric Conferences* (IBC). We will first discuss *Biometrics* and then other membership benefits. The role of IBC is discussed in various other sections, i.e., apart from membership benefits, also in education.

1.1. *Biometrics*

As past coordinating editor of *Biometrics*, Marie Davidian commented from her experience on some issues associated with the journal. As the journal is a main, tangible consequence of IBS membership, it is important that members feel they are getting their money's worth. Even without data, it would seem that dissatisfaction with the journal could be a major factor in discontinuation of membership for some members. Thus, we believe it is worth discussion whether there are ways to make the journal more useful to members.

The membership of IBS is diverse in terms of background, area of specialization, focus (e.g., applied versus methodological interests), and level of training. Concerns of some members over the level of *Biometrics* have been brought to the editors' attention. For example, some members feel that *Biometrics* is too methodological, with too much emphasis on development of sophisticated, specialized methodology with too little complementary attention to challenges faced by applied statisticians and with the examples given, at best, a purely illustrative role. Ideally, the data analyses in *Biometrics* should be models of "good data analysis practice". Furthermore, some members have complained that the journal is too "biostatistical"[♣] (i.e., the majority of papers having to do with medical and public health applications with correspondingly too few in the areas of wildlife, forestry, ecology, natural resources, agriculture). Of course, a journal can only publish papers drawn from among its submissions, but this can be a self-fulfilling prophecy; e.g., if the journal is perceived as biostatistical, then researchers in other areas are disinclined to submit papers.

In summary, Marie Davidian and the current co-editors perceive that there is a sense of disillusionment with the journal among some members. It is important to increase the value of the journal to all members without detracting from its perceived strengths. Some recommendations to this effect are now formulated.

Recommendations.

- The IBS will undertake a thorough **review of the journal**, its contents, and its editorial policy. We have a few recommendations to make in this respect. It would be useful to conduct a "user" survey, as part of the remit of the Ad-Hoc Committee, to be established within or in close conjunction with the Editorial Advisory Committee. A few possibilities for the journal to become more attractive to the profession at large (rather than for the more theoretically oriented academic segment), is to establish a number of series/sections (medical, environmental, agricultural, genetic), not dissimilar to the way in which the *Journal of the Royal Statistical Society* is conceived. This idea had been proposed by co-

[♣] In the US terminology, biostatistics refers to statistical in medical, epidemiological and public health applications. The same concept is termed medical statistics in the British tradition, where biostatistics is reserved for statistics in the entire collection of life sciences (hence also agricultural, biological, and environmental statistics). We point out this difference in terminology merely to avoid confusion. In the remainder of the text, we will use the word "biostatistics" to mean all applications of statistics in the medical, epidemiological, public health, agricultural, environmental, biological,... sciences.

editor Brian Cullis. Maybe this can be achieved through clearly delineated and defined sections within the journal, rather than for separate series.

- **Publication of periodic “tutorial”, “expository”, or “overview” articles.** Tutorial articles could introduce an area at a level accessible to a reader with basic training in statistics, provide worked examples, and give guidance on implementation. Similarly, overview articles could survey an area and give a chronology of important developments to the present. The idea of such articles would be to provide an accessible resource to members perhaps unfamiliar with an area or facing new data-analytic challenges. In addition, there is the option of opinion articles, with discussion, on important topics (for example, challenging the views of regulatory authorities on certain statistical procedures in a regulated clinical trials environment). Some of these articles could be on invitation by the co-editors (whilst, of course, still undergoing full review). Of course, spontaneous submissions would be equally welcome.
- **Publication of introductory articles on new, hot areas** such as bioinformatics, data mining, image processing, statistics in bioterrorism surveillance, and so on. Such an initiative can be combined with organizing meetings within these areas. The publication of proceedings in *Biometrics*, of course undergoing full peer review following the usual standards, will then largely increase the chances of having good quality papers in these areas. At the same time, it would be desirable to have unsolicited submissions in such areas as well. This would be seen as a sign of health for the journal. As with the previous recommendation, spontaneous submissions as well as submissions on invitation by the co-editors would be welcome.
- **Publication of invited papers of IBCs.** This would be beneficial to both the journal and IBCs. Editors could invite all or a selection of invited papers, either for a dedicated issue or for a number of (virtual) sections across several issues. It is imperative to ensure that these papers undergo the same level of peer review, as do regular submissions.
- **Translations.** In an effort to increase the level of scientific communication between the various linguistic groups, and to prepare non-native English speakers for the use of scientific English, it is worthwhile to explore the option of making “educational” articles (tutorials, expository articles, overview papers, introductory articles) available in other major languages, such as French or Spanish. Two-column layout, with English next to the foreign language, may serve as a tool to increase familiarity with scientific English. Such translations could usefully be placed on the Society’s web site, on the members only pages.
- **Review times.** Unfortunately, in a related challenge, *Biometrics* and statistical journals more generally are not viewed, even by statisticians working in these fields, as viable outlets because of our relatively lengthy review times. Unless our review times and backlog can be brought in range of those in subject-matter journals, it is feared that *Biometrics* will not be competitive as an outlet, and, accordingly, IBS will not be viewed as an attractive society for membership by researchers in these emerging fields. Therefore, it is recommended to undertake further efforts to cut back on the review times. It is encouraging to know that they have gone down further in the first six months of 2003. The reviews of review times, studies by editorial assistant Ann Hanhart and former editor Marie Davidian ought to be studied

carefully by the aforementioned Ad-Hoc Committee. A small but useful change in editorial policy may be to do the entire correspondence in electronic format, including the letters from the editors the authors.

- In addition to the previous point, the introduction of a so-called **fast track** should be explored. The views of the Ad-Hoc Committee, and in particular the current and past Editors, will be important to arrive at a reasonable working definition of what is to be considered a typical candidate paper for the fast track.
- Even for regular submissions, i.e., non-fast-track submissions, review times are important from a scientific and marketing point of view. Therefore, it seems imperative to undertake an annual review of performance regarding review times, as well as in terms of fulfillment of dictates to publish tutorial, introductory, and overview articles. After the initial review by the aforementioned Ad-Hoc Committee, this task could be left in the hands of the Editorial Advisory Committee which could choose to set up an ad-hoc committee.
- Having **special topic issues** in which the first part of the issue is devoted to several invited papers in a particular area (maybe an overview type paper followed by accounts of current research), focusing perhaps initially on those that are perceived as being underserved.
- With the availability of the **electronic version** of *Biometrics*, there may be additional ways to provide novel services to members. For example, the journal web site could offer members access to more detailed accounts of data analyses, author-contributed software, and so on well beyond what is offered now (this would require greater cooperation on the part of authors than we have now), linked to articles in the journal.
- **Re-launching Biometrics.** All of these changes taken together, in combination with those that are likely going to be presented by the Ad-Hoc Review Committee, will constitute a relatively major change. In an effort to make these known to the (potential) readership in general and the membership in particular, it is worthwhile to consider a formal re-launch of the Journal, exactly as was done half a decade ago with the *Journal of the Royal Statistical Society*. Such an effort might usefully be undertaken in connection with the *Journal of Agricultural, Biological, and Environmental Statistics (JABES)*, within which IBS is one of the two partners, the other one being the ASA. In this respect, the cover of *Biometrics* might have to be changed, combining traditional elements to ensure continuity, together with fresh looking and appealing elements. Ideally, Blackwell's experience and/or a designer's services would be used.

Proposed Action. The President appoints an Ad-Hoc Committee to review *Biometrics* in terms of its procedures and editorial policy. The Committee is proposed to Council for approval. The Strategic Plan Committee proposed the assignment of this committee encompasses all of the items listed above.

1.2. Other membership benefits

There clearly are plenty of other member benefits beyond the journal that need discussion. A basic element is that members have to feel that there is something they derive from membership that has the potential to enhance their own, personal professional life. This may be particularly true in countries where statisticians are isolated or command little recognition. Financial considerations permitting, a possible service the Society could provide is a sort of visiting lecturer program in which famous biometricians visit an institution in such a region or group for a few days with due action taken by the Society to secure funding for such an initiative. The Society ought to build a knowledge base on important funding opportunities. This would, of course, require an incentive for the visitor. Broadly, the category of **education** should be viewed as a strong area of membership benefits and we refer to the appropriate section of more ample and structured discussion on this topic.

Membership has declined somewhat and we are not attracting a sufficient number of young colleagues. A benefit that may be particularly helpful to younger people is access to employment opportunities. It may be worth exploring setting up a professional **employment Bureau** on the IBS website, that would be accessible only to members of IBS. The bureau lists could be organized according to Region or country to cater to the international nature of the organization. Clearly a certain amount of time and effort would be needed to set up and advertise the system, and there may be a need to charge employers a sum to defray the organizational and advertising costs. The pros and cons need to be monitored carefully, especially given the availability of free (but technologically low) outlets such as ALLSTAT.

In addition, a number of additional services can be provided at the **membership-only part of the website**. For example, the *Biometric Bulletin* should be made available at the members-only part of the website, with perhaps one feature article available, as a teaser, in the public pages of the site.

Persons not employed by a large western academic institution may find it difficult to access the biometric literature. An arrangement between IBS and Current Index to Statistics (CIS) or JSTOR or both, allowing IBS members to access these databases would be a considerably valuable service, particularly to those working in the less prosperous countries. Laurence Freedman, who proposed this idea, doubts that either of the vendors would enter into such an agreement (because of the problem of controlling access to their databases), but we wonder if the IBS could explore the possibility. It is possible that CIS CD's could be purchased by IBS members, at a reduced rate, through such an arrangement. In particular, as far as *Biometrics* is concerned, the availability of the journal's back issues in digitized form, either through Blackwell's Synergy or on CD, would be a great benefit to the membership.

Further, an initial discount and/or a continuous discount on purchases (books and other products) could be provided to IBS members through publishers. Springer, OUP, Wiley, and others could be contacted and deals could be negotiated. Opportunities resulting from such deals should be promoted continually to ensure good usage. This is a task for the International Business Office.

The Biopharmaceutical Section of ASA publishes a newsletter twice a year (Spring and Winter) called "Biopharmaceutical Report". They always have at least one article with "scientific" content about a topic of interest to members of the section. The articles may be on regulatory issues, activities in which members are often involved, or tutorials on methodology. For example, the

Winter 2002 issue has a number of articles by members of the biopharmaceutical industry on “Statistical Analysis Plans”. The Winter 2001 issue featured an article by Don Berry on “Adaptive Trials and Bayesian Statistics in Drug Development”. The Winter 2000 issue had an article on “Challenges and Opportunities of Biometrics in Post-Approval Drug Development”, including a section on “Opportunities for Biometrics”. Further articles in past issues have been about data mining and drug discovery, data safety and monitoring boards, the future of pharmaceutical statistics, challenges facing nonclinical biostatisticians, using linear models in clinical trials, cost-effectiveness analysis, diagnostic testing, etc. Such an idea could be of use to our Society as well, of course with a broader remit than just biopharmaceutical statistics in mind. For example, as an adjunct to tutorial articles in *Biometrics*, we could advocate articles like this in the *Biometric Bulletin*. This could be done in the once-a-year paper copy of the *Bulletin*. The articles could be put on the members-only section of the IBS website, as a permanent repository of relevant material for our members.

The central membership database that is currently in its testing phase is, among others, an efficient tool to retrieve information on fellow members of the Society. There will be easy ways for members to update their own information, and to choose which information is publicly available and which one is not.

Apart from central benefits, the Society offers benefits through its Regional structure. In the interest of efficiency, the flow of information between Regions and Groups needs to be improved, so that initiatives, taken by one Region or Group, become known to all of them. The Web site seems pivotal in this respect, combined with email alerts about important initiatives. One such initiative, discussed in detail elsewhere in this report, is the promotional material developed by the German Region. In Section 5, the communication between Regions and Groups is partnered with the establishment of, roughly, continentally delimited Networks.

Recommendations. The concepts outlined above should be explored and implemented: (1) employment Bureau and further services on the membership only part of the website; (2) making back issues of *Biometrics* available in electronic format (Synergy, CD); (3) proactive action is required to seek discount packages, which are then actively promoted to our members and to potential members; (4) active search of general interest articles for *Biometric Bulletin*, to supplement those in *Biometrics*; (5) exploitation of the central membership database as a tool of membership benefits.

Proposed Actions.

- The issues involving *Biometric Bulletin*, including item (4) in the list of recommendations above, are to be taken up by the Editor.
- Items (1), (2), and (3) are taken up by the International Business Office in conjunction with Blackwell and/or the Webmaster. Proposals are made to the Executive Committee that will seek advice and/or approval of appropriate bodies of the IBS.
- Item (5) is to be taken up by the International Business Office. Proposals are made to the Executive Committee that will seek advice and/or approval of appropriate bodies of the IBS.

2. Central Collection of Dues

This is a very delicate issue. Advantages of centralization of dues collection, or more generally administration, are the efficiency inherent in having a single system and, in the case of dues, a single point of contact, which may better facilitate reduction of errors in maintaining records. In addition, the threshold to become a member could be much lowered and a number of services could be made available much more easily than is currently the case. A prominent disadvantage is that centralization may be perceived as stripping the Regions and Groups of autonomy. It is our view that centralization could be advantageous. We feel that if the Society is to take on the role of enhancing the stature of the statistical profession among scientists and the public, it would be an advantage to have a centralized administration *to the extent Regions and Groups wish to participate*; this could serve the purpose of highlighting the common challenge facing all regions and providing an easier platform for implementing strategic initiatives in this direction.

Thus, we feel that the option of central collection of dues is an inevitable and necessary step as the IBS evolves. While the present system of Regions collecting the dues and passing them on to the IBS Office may have worked reasonably in the past, some committee members have noticed in their own Region some degree of uncertainty as to who is a member of the IBS (according to the IBS Office's official membership list) and who is not, and, related to this, who should have received the Society's publications, and which. The distribution of time between the Regional Treasurer's receipt of payment, its transferal to the IBS Office, and finally entry of the payment onto the IBS Office's file has apparently a long tail. This results in the uncertainty mentioned above. Arguably, it leads to loss of membership, especially by dissatisfied customers.

Presently, the membership fee is composed of two portions: (1) the central IBS dues and (2) the dues charged by the Regions and Groups. It is very important to note that this decomposition will not change. For Regions where dues are collected centrally, the money flow will be reversed in the sense that central IBS will pay a fraction of the dues to the Region or Group to which a member belongs.

One should recall that the possibility of central collection of dues was raised at Council in year 2000, and that there was some opposition. Central collection of fees does indeed have the following potential problems: (a) more burden on the IBS Office; (b) reduction in local contact between Regional Officers and their members; (c) possibly less friendly payment procedures, particularly for members in countries where internet facilities and credit card use are less prevalent; (d) allowance for a variable addition to the basic fee, according to the Regional "add-on". However, we do think that we should now start planning for central collection of dues as a service to those Regions and Groups willing to participate in the system, with no pressure exercised on Regions and Groups who would like to maintain Region-specific collection of dues.

The advantage is that potential members, visiting the central website, can become a member with a credit card and a few simple clicks. In such a situation, we need to ensure that such a new member is assigned to the appropriate Region or Group (Region/Group where professional address is located or Region/Group of choice?).

An added advantage of central dues collection is the option to ask for charitable contributions along

with the regular dues. This is current practice, not only in a large number of scientific societies, but even within certain Regions of IBS (including WNAR, ENAR, the Belgian Region, the Dutch Region,...). Such contributions will be of direct and great benefit to our members in Special Circumstance Countries and our membership will clearly see the case and use for such contributions.

Regions and Groups option for centralized dues collection should still have a chance to allow/refuse members. This means that membership would come into effect pending approval by the appropriate Regional body.

Recommendation. IBS should support and promote central dues collection. Regions/Group will have the option to collect dues at the Regional or Group level. To facilitate this process it may be useful to carry several currencies (US Dollar, Euro). The International Business Office, in conjunction with the Executive Committee and, where appropriate, with Blackwell, should prepare a proposal to Council. Once the legislation is in place, the system can be implemented. It is useful to start with a small number of Regions and Groups that are willing to participate in a testing phase.

Proposed Actions.

- The International Business Office and, where appropriate, Blackwell, develop a proposal to technically accommodate central dues collection.
- The Executive Committee seeks participation of one or a few Regions or Group in a 2-3 years experimental phase.
- Council's approval is sought for a testing phase. A small Ad-Hoc Committee is set up to guide and evaluate the testing phase. The Committee involves members from the Regions/Groups involved, the International Business Office, and the Finance Committee.
- The Ad-Hoc Committee reports, at least once a year, to the Executive Committee and to Council, regarding the proceedings of the testing phase.
- Upon completion of the testing phase, or earlier if required, a change in bylaws is proposed to accommodate both the traditional as well as the central dues collection.

3. Strategic View on the Profession in a Rapidly Changing Environment

We clearly should have a strategic view on increasing the recognition of our profession. The key question, of course, is *how*. There are two levels of "missionary work" we need to do. First, we must establish broad recognition among researchers in other scientific disciplines as a "real" science. Second, we must cultivate public recognition of what we contribute to science and public policy. This task is very difficult. We must promote the IBS relentlessly as the "main authority" in existence.

Recommendation. An important start would be to form a committee to produce "press release" sort of material, i.e., "catchy" accounts of the role of statistics in high-profile scientific endeavors,

historical information, challenges in which statisticians are currently involved, and so on. The hard part would be ensuring its dissemination to the most advantageous outlets. We need to think of all possible audiences in this regard. On the one hand, we need to target those that can potentially get attracted to a career in biometry. For example, the German Region produces leaflets targeted at high school students to make them aware of the need for and excitement of applied statistics. Such initiatives ought to be known to and evaluated by the IBS as a whole and, if successful, support ought to be given to Regions and Groups that would like to make similar efforts. Next to high school students, graduate students need to be targeted. In summary, we suggest to form a *Public Relations Committee*. One assignment for the committee is to underscore the fact that biometry is a worldwide discipline and IBS is an international society. Thus, all research and collaborative efforts undertaken for the profession in one part of the world is likely to be of use around the globe. The Public Relations Committee should consist of biometricians as well as people with public relations and/or marketing expertise. Locally, one should work closely with other statistical authorities, such as national societies (RSS, ASA, German Statistical Society,...). Further, what is relevant to one Region may not be to another. National newspapers, for example, are most interested in what is of relevance to their country. Therefore, what is of relevance to one Region, may serve merely as a template for another. But this in itself is very useful.

Proposed Action. The Executive Committee proposes the formation of a Public Relations Committee, along the lines proposed above. Council's ratification is requested. Initially, this is an Ad-Hoc Committee, with a well-defined term. Eventually, it can be turned into a Standing Committee.

One issue we have to confront within the Society is our tendency to align ourselves depending on area of specialization; e.g., *biostatistician*, *wildlife statistician*, etc. This promotes *internal* tension at the expense of us neglecting external pressures. Of course, we identify with others who work in our area, but we ought to remember that we are all ultimately statistical scientists with interests in various aspects of biology. When it comes to promoting our general cause, it would be to our benefit to emphasize how far-reaching the discipline is to all sorts of biologically oriented problems. We ought to promote the attitude that, while there are differences between the various sub-fields within which we are working, it is of the utmost importance to have strong (methodological) communication lines. Longitudinal data techniques developed with a clinical trial application in mind can be strongly beneficial to epidemiological or agricultural applications, perhaps with some additional work. In this sense, we do not think it beneficial to form sub-sections of IBS. The tendency might be to create a number of small in-crowds and ultimately to stimulate inbreeding. Rather, all activities of the Society (Journals, International Biometric Conferences) should ensure there is the widest participation and fairest representation of the various areas of application. Such an attitude will enhance our ability to adapt to an ever-changing professional environment. The current shift of a large number of us to such areas as statistical genetics and bioinformatics underscores our exceptional and high flexibility to adapt. The only problem is that we are simply too modest to recognize this as a strong asset.

The problems concerned with the non-inclusion of statisticians as authors, or the exclusion of more complicated statistical analyses from papers is to do with the lack of statistical knowledge of editorial boards of the journals in which the work is to be published. An important role therefore for the IBS is to participate in the education of these editorial boards to increase their understanding of statistical methods. A way of doing so is to encourage statistical editors or consultants to the

boards or by an action of outreach to the societies that sponsor the journals. This task could be assigned to a Public Relations Committee, as mentioned elsewhere in this document.

Here is an unfortunate problem that has the potential to undermine our attempts to enhance recognition, one that, for example, Marie Davidian has encountered countless times during her tenure as *Biometrics* co-editor. As most of us know, the term "biometrics" has come in recent years to refer to the emerging field of technology devoted to identification of individuals using biological traits, such as those based on retinal or iris scanning, fingerprints, or face recognition. At the journal, the editors routinely receive inquiries by firms involved in these activities wanting to advertise (thinking we are a trade publication), wishing to place the editors on certain mailing lists, asking for expert advice, etc. One such correspondent, upon receiving the editors' response explaining what we mean by "biometrics," suggested that we use another term! This has become so frequent that the journal placed a link "Definition of Biometrics" on the journal web site explaining the historical (and first) use of term "biometrics" and making clear that the journal is not associated with such commercial activity! Then again, are there statistical problems in research in this area? Undoubtedly!

In response to this issue, several attempts are being undertaken to bridge the gap between both fields and to explore ways of collaboration. For example, the ENAR Spring Meeting 2004 will have a session devoted to the "other" biometrics and, in particular, ways to collaborate between both fields will be explored.

Recommendation. All regional meetings, as well as the International Biometric Conference, should be used to allow members to familiarize themselves with **the other biometrics** and to explore ways of collaboration. The President or Vice-President should place a strong call in the *Biometric Bulletin* to this effect.

Proposes Actions.

- President or Vice-President takes up the placement of such a call.
- The International Program Committees of future IBC's are requested to take action.

We believe that we need to communicate better, as a professional discipline, with our collaborators in other disciplines, particularly epidemiologists and biologists. There are two possible ways that we can try to promote our own "methodological" view.

One is to form a roster of really experienced persons who are willing to speak about the role of biometry in the respective discipline. We mean that the IBS should seek out other societies, e.g., the Society for Epidemiological Research, and discuss with them the possibility of including in their future conferences a lecture or session on the contribution of biometric methods to research in their discipline. One or more from the roster of speakers could then be asked to give the lecture/s.

The idea should be explored whether such outside speakers could be funded. Of course, the current financial situation may not allow for this idea to be implemented right away, but as the financial

situation becomes healthier, this is certainly worth exploration. Other scientific societies may be much more inclined to buy into the idea if the outreach speakers come with a (modest) travel budget.

The second, which might develop naturally from the first suggestion, is to explore holding a joint meeting of biometricians and persons in the other discipline (e.g., epidemiologists, persons involved in bioinformatics) on the interface between the two disciplines. IBC's are particularly useful in this respect.

These points are taken up in further sections, where collaboration with other scientific societies, from an organizational as well as from a substantive point of view, is discussed.

Recommendation. Once a year, in the paper-published *Biometric Bulletin*, there should be an article (in the main journal or as an insert) describing the **Strategic View for the Society**, as well as the year-to-year business plan.

Action Point. An executive summary of the Strategic View + Business Plan is written for the paper article. To be taken up by the *Biometric Bulletin* Editor, as well as by the Strategic Plan Committee Chairs.

Jessica Utts (ENAR) contributed an article to the May 2003 issue of *The American Statistician* on the topic of statistical literacy at the high school level.

Recommendation. We should ask Jessica Utts and the *American Statistical Association* to reproduce this article in the *Biometric Bulletin*.

Action Point. To be taken up by the *Biometric Bulletin* Editor.

4. Education

The fact that statistics as a proper discipline is not recognized in certain areas is a testimony to the need for IBS to play an active role in emphasizing statistics in science and public policy and how it is not just "computer programs" and tabulation but a sophisticated, formally grounded field that has made enormous contributions to scientific advances. We strongly believe the IBS has a responsibility to offer assistance to regions that face this challenge. Development of formally sanctioned materials that document the stature of the discipline, its accomplishments, and the demand for statistical training in other parts of the world, and outline the potential structure of educational programs might serve as a starting point.

The Education Committee, in its present form, has already discussed the running of courses in special biometry topics in countries without strong biostatistical facilities. We believe such ideas should be pursued and strengthened. Indeed, the IBS should develop a wholesome view on education.

We discuss several aspects with associated **recommendations**.

- **Part of the world.** The educational organization is different in different parts of the world such as the predominantly English speaking countries in the western world, continental Europe, the economically developing world (within which large between-country variability can be observed), etc. The Society should zoom in on different needs. For example, in the educationally well-organized parts of the world, short courses run by IBS and its Regions should at the same generate revenue, whereas the Society should essentially focus on its educational mission in the economically developing part of the world. In various part of the world, admirable efforts have been undertaken to ensure a high quality level of education, in spite of difficult circumstances. An example of such an implementation by committee member Clarice Demétrio, based on international cooperation between Brazil, Europe, North America, and Australia, is given in the Appendix.
- **Full graduate programs.** The Society should not restrict its educational efforts to short courses (as has been the case in the past). In some parts of the world, the Society should be very active in the establishment of full educational programs. Indeed, whereas in the US and the UK postgraduate education in applied and biostatistics is common, this is true only to a much lesser extent in continental Europe, let alone in other parts of the world. The Society should foster the establishment of formal educational programs in parts of the world where such needs exist. Several departments have taken their own initiatives to this effect. For example, the Harvard School of Public Health has been instrumental in building biostatistical programs in Belgium, Greece, and Australia. Many other examples can be listed. The Society could facilitate such activities, primarily by drawing from the expertise of members who have been involved in such initiatives. Faculty, active in graduate programs in biostatistics, is an obvious candidate to serve as guest lecturer worldwide. In reverse, efforts should be undertaken to allow members from international locations to participate in well-established educational programs in biometry and biostatistics. For example, the Master Program in Biostatistics of Limburgs University (Diepenbeek) enrolls every year 16 students from developing countries in their two-year program, facilitated by a Belgian Government Grant.

One might consider drawing up a template program, based on successful experiences from various locations (US, UK, Europe, etc.). Such a template could consist of a minimal core together with a large number of suggestions for other mandatory and optional courses. In addition to this, successful instructors could be asked to make their course notes available, for use and/or adaptation by local instructors. The template could be accompanied by full syllabi for courses, course notes, exercises, standard tests, etc.

An important component of this and other educational initiatives is the use of Distance Learning methods (online courses, access to free educational materials, software). Such methods could either replace or supplement on-site teaching.

- **Summer Schools and Short Courses.** Several bodies have devoted time and energy to summer schools in biostatistics, epidemiology, and related fields. For example, in June 2003 a 2-week Summer School takes place in Italy (Trieste, UNESCO sponsored), based on a joint initiative from Karolinska Institutet (Sweden) and the Harvard School of Public Health. The IBS should seek involvement in and foster such activities. Other examples include short courses and Summer Schools on epidemiology and statistics, hosted at the University of

Washington in Seattle, the University of Michigan, Johns Hopkins University, etc.

A wide variety of initiatives have been in existence. Let us list a few by way of example.

The School of Public Health of Tulane University (New Orleans) has developed Programs with and targeted at economically developing countries, with focus on tropical medicine.

Another example of education worldwide is the *International Agency for Research on Cancer* (IARC). Its program of training courses was initiated in 1968. More than 110 courses have been organized to date, either at the Agency or throughout the five continents. They have been attended by over 4500 public health workers, scientists, and clinicians. Their aim is to improve knowledge among cancer researchers worldwide, particularly in areas where local opportunities for instruction are limited. Topics covered include: basic and intermediate cancer epidemiology, advanced statistical methods in cancer epidemiology, detection of health hazards using mutagenicity and related tests, molecular biology for epidemiologists, cancer pathology for non-pathologists, genetic and molecular epidemiology, occupational cancer epidemiology, radiation epidemiology, nutrition and cancer, and infection and cancer. IARC training courses usually last one or two weeks.

Alvaro Muñoz and Norman Breslow have lectured in the past, in Spain and Latin America, on the topic of epidemiology, sponsored by IARC, the Pan American Health Organization, and national universities. David Clayton and Michael Hills have been and are active in several programs, including Erasmus University in Rotterdam (the Netherlands) and Florence (Italy).

- **Education at International Biometric Conferences and other Society-based meetings.** Over the last decade, the Society has developed a successful record of organizing short courses surrounding IBC's. These courses serve a double purpose: (1) to provide education to the membership in important (emerging) topics and (2) to generate revenue for the Society. The Society is in good company since other Societies too have such educational programs, with both of these goals in mind (e.g., RSS, ASA, ENAR). Nevertheless, there are important differences. Whereas RSS, ASA, and ENAR operate within a relatively homogeneous national context, IBC's are truly international encounters, with members from diverse national, educational, economic, linguistic, and cultural backgrounds. This poses specific challenges to the successful educational program. Topics of common knowledge in one part of the world may be new or unknown in another. The body designing the educational program for an IBC should be well aware of this. This is best achieved through the diverse composition of such a committee. Given different economic backgrounds, a differential fee structure is in place. The fact that English is the most common language for scientific exchange (international meetings, scientific journals) poses, again, specific challenges to members from various linguistic backgrounds. While this is less of a problem for small linguistic communities, it is more so for the larger ones, such as the French speaking and Spanish speaking communities. The Society has a mission in recognizing the importance of these languages, arguably for transnational exchange (e.g., within Latin America), but not for international exchange. A way to reach out to those who struggle with scientific English is the organization of tutorials and short courses in various languages (e.g., a short course on longitudinal data, Spanish and/or French spoken but with English or even bilingual

transparencies). Such an approach will enhance communication between biostatisticians worldwide and hence increase the overall level and quality.

- The IBS should explore ways of providing professional development services to its members. Currently, the IBS is almost entirely absent in this segment of professional organization. Exceptions are some of its larger Regions (ENAR, the German Region). Large national societies, such as the *Royal Statistical Society* and the *American Statistical Association* take such initiatives very seriously. Inter-society working parties may be set up to provide professional development services to our members.

Recommendation. The **Education Committee** should be given a new and clear remit, consisting of several parts:

- Facilitate graduate level education in biostatistics in all parts of the Society where the need exists. As stated before, in certain areas (e.g., US and UK), a sufficient level of education has already been provided by universities and other statistical bodies (RSS, ASA).
- Organize short courses within the context of the International Biometric Conferences. Associated to this, the Committee should think of other educational activities (roundtables, tutorials, scientific English, software sessions) to surround the IBC's.
- Organize short courses outside the context of International Biometric Conferences. A strong focus should be placed on biostatistically and biometrically developing parts of the world. To this end, the Education Committee, in collaboration with the International Business Office and Webmaster, could decide to maintain a list of short courses and lecturers (for face-to-face teaching and/or for distance learning, with on-line courses, including taped lectures).
- Facilitate biostatistical education for non-biostatisticians.
- Explore the use of Distance Learning methods in all of the educational areas.
- Establish professional development services, if possible in conjunction with other national and international statistical bodies.

To cope with its various missions, the Education Committee can set up Ad-Hoc Committees within its boundaries, along the lines followed by, for example, the Editorial Advisory Committee (e.g., towards editor searches), or the Finance Committee (e.g., to review the International Business Office).

Action Point. The General Secretary, working closely with the Executive Committee, rewrites the remit of the Education Committee. The new Education Committee will be more structured, likely also be larger, and with specific areas of attention assigned to a specific member, specific members, or even formally established sub-committees. The aspect of Distance Learning could be developed

in close collaboration with a newly established Technology Committee, built around the Web Master. A transition procedure is developed between the current and the new Education Committee. The proposed new structure is presented to Council for discussion and ratification.

Recommendation. When the Education Committee is redefined in terms of its remit, it seems imperative to do the same with the **Award Fund Committee**. The Committee could be termed “Travel Grant Committee” or “Travel Award Committee”, and its mission could be to foster participation of members with less favorable economic circumstances in meetings and educational activities either organized (e.g., IBC and its education program) or endorsed (e.g., training programs) by the Society. In addition, the Award Fund Committee should actively look for financial means (sponsorship) to reduce the financial burden for members from Special Circumstance Countries to attend the IBC. For example, they may look for sponsorship for various activities surrounding an IBC, such as the conference dinner. Indeed, the conference dinner should be an occasion where members from all over the world can informally meet and celebrate their unity in a common profession, not one where the world is divided into two parts.

Corporate sponsorship of events would be a source of income to explore further.

Proposed Action. The General Secretary, working closely with the Executive Committee, writes the remit of the Travel Grant Committee. Its conception as a new Standing Committee, succeeding the Award Fund Committee, together with a transition procedure, is proposed to Council for ratification.

Recommendation. By way of experiment, a selected course or selected courses at IBC2004 could be chosen for parallel teaching in English and other languages. For example, an English, Spanish, and French version could be taught of the same course, with the same version of the English slides. In case this is impractical for IBC2004, the experiment could be run at IBC2006. It is not important to have large audiences in the experimental phase, but rather a number of people who are willing to participate in the try-out and to give detailed feedback immediately following the course.

Proposed Action. This idea is to be taken up by the Short Course Committee of IBC2004 and, when impossible to organize in 2004, it is carried over to the Short Course Committee of IBC2006.

5. Increase of Membership

This issue is intimately linked to the one of member benefits. People will join a society if they feel there are obvious benefits that they would miss if they did not belong or that they cannot derive from membership in other societies. It is noteworthy that medical statisticians in European regions tend to join ISCB and not also IBS, but then *Biometrics* is thought by many to publish mainly biostatistical (in the sense of medically oriented) articles. These individuals obviously do not see an added value to IBS membership. At the same time, one can be left amazed by how many statisticians in the U.S.A. do not even realize there IS an IBS. For example, some junior colleagues, graduates of top U.S.A. departments of statistics, were completely unaware of the existence of our Society until it is explained to them that *Biometrics* is our flagship publication, and they had no idea that ENAR or WNAR are regions of the IBS and, more importantly, that they could join ENAR or

WNAR. Joining in partnership with other societies to share membership lists and undertaking an email advertising campaign with perhaps a link to the IBS website (where benefits of membership are clearly delineated) might be possible. The electronic version of *Biometrics* might be another vehicle; offer free, limited-time subscriptions to members of other societies, assuming they do not have institutional access already.

It may well be that changing publishers for *Biometrics* to one that is committed to marketing the journal aggressively could have a side effect of increasing the visibility of IBS and thereby attracting some new members. But we should not count on this too strongly. Rather, our commercial partners, the International Business Office and Blackwell, should work closely with us to meet our strategic goals.

Recommendation. Once finished, discuss the Strategic Plan with Blackwell (Bostrom is represented on the committee by Executive Director Claire Shanley) to find an optimal amount of synergies. This holds not only for individual members, but also for institutional and corporate members. For example, the IBS might appeal to all academic departments of biometry, biostatistics, and related areas, as well as to industry and the government, to become institutional or corporate members. It is then important to assess which benefits in terms of electronic access could be provided to such institutions and corporations, especially in the case where their libraries are not already journal subscribers.

Proposed Action. To be taken up by the Executive Director.

At the same time, increase in membership will naturally occur from improvements in membership benefits, increase of profile and educational opportunities, and that if we attend to those issues, then the benefits in membership levels will be seen.

Several scientific societies undertake membership recruitment campaigns, on a regular or ad-hoc basis. For example, the Royal Statistical Society just recently started the “Recruit a Colleague” Campaign. Their Newsletter, RSS News, was accompanied by a pair of leaflets. The first of these explained the campaign to the membership. The second one is intended for prospective members, giving background on the Society and including a Nomination Form.

A similar action is undertaken by ASA. An email campaign, termed “Nominate your colleagues for ASA membership!” was launched in November 2002. The interested members (current and prospective) are directed towards a web site for further information and actual nomination.

Other scientific societies have taken similar courses of action. For example, the Drug Information Association (DIA) has developed an attractive “Membership Kit”. It contains colorful material, all in the house style and colors of the organization. Strikingly, each piece of information is of a different paper size, given each bit an individual look and conveying the message it is “worth looking at”. Such a membership kit could be an attractive element to become a member, indeed.

Recommendation. Our Society should consider a similar campaign, perhaps as an insert to the once-a-year paper newsletter (hardcopy Biometric Bulletin at the end of the year).

Proposed Action. To be taken up by the Executive Director, in close collaboration with the Executive Committee and, once established, with the Public Relations Committee.

The German Region has developed a 25,000 euro brochure targeted at high school students in order to familiarize them with the presence of and need for (bio)statistics in several layers of Society. The German Region is to be congratulated on such a high quality initiative. Such initiatives should be known to other parts of the Society. If successful, they can often be copied as such to other regions within the same linguistic group or, after translation, to other parts of the Society.

Recommendation. Conduct a Society-wide survey to generate an inventory of promotional material and initiatives that are available. The information collected should be such that other entities (central IBS, Regions, Groups) obtain a clear picture of what effort would be needed to adapt a particular promotional tool to their own needs. The brochure developed by the German Region will strongly help us to set a high standard. Further, material used by other (national) Societies, such as the *Royal Statistical Society*, *American Statistical Association*, and *Drug Information Association*, ought to be studied.

Proposed Action. To be taken up by the Executive Director, in close collaboration with the Executive Committee and, once established, with the Public Relations Committee.

The environment within which we are working is, and always has been, multidisciplinary. Where we may have been a minority among scientists in this position for almost a century, the current situation in the biosciences is such that there is a major shift towards interdisciplinary and multidisciplinary activity. Universities, faculties, departments, and educational programs are in transition to respond to the challenges posed by this evolution. For example, classical programs such as biological sciences and medical sciences are interpolated to produce scientists with a biomedical or life sciences signature. Arguably, not only the academic organization but also the (international) professional organizations are to follow this trend. If not, there is a strong risk that existing (international) theme focused societies (as opposed to national societies such as the American Statistical Association or the Royal Statistical Society) are to be made redundant by societies with a new focus. For example, the existing and potential membership of the International Biometric Society might be drained by societies with a focus on statistical genetics and bioinformatics. The answer to this danger is not competition but joining of forces. This should be done to bridge existing dividing lines and to prevent new ones from occurring.

Recommendation. The IBS should actively seek collaboration with other statistical societies such as the International Society for Clinical Biostatistics (ISCB), Pharmaceutical Statisticians in Industry (PSI), IGES, the Drug Information Association (DIA), the Environmetric Society, the Society for Clinical Trials (SCT), the Society for Epidemiological Research, etc. A task force should be established, in the form of an Ad-Hoc Committee, to explore such possibilities. The committee should think very creatively about ways of collaboration. Possible forms include: joint meetings and joint membership. Joint membership refers to a package deal by which one becomes a member of two or more societies at a price lower than if one would become a member of the individual societies. Such an approach is similar to the policy followed by air carriers in terms of their frequent flyer programs. One way of doing this is considering the joint organization of the IBC with partner organizations (e.g., IBC2004 with the Statistical Society of Australia, Inc.) the norm rather than the exception.

Proposed Actions.

- The President and the Executive Committee should consider establishing such an Ad-Hoc Committee and define its remit.
- Regarding the joint organization of the IBC with relevant partner organizations, the LOC2006 Chair is to be contacted.

The size of membership in North America and in Europe is of the same magnitude. However, whereas North America is organized in two Regions (ENAR and WNAR), Europe is grouped in a number of relatively small Regions (the German and British Regions being the exception). The larger Regions (ENAR and the German Region) are successful in running annual meetings of good quality and high visibility. These meetings are also important to stimulate members to renew their membership. Regions of intermediate size often succeed in running interesting meetings as well (e.g., the Nordic Region, the French Region, WNAR, the Dutch Region, the Austro-Swiss Region, the Eastern Mediterranean Region). The small regions encounter difficulties in running meetings and their members often prefer to attend international meetings rather than to invest in their own meetings. Therefore, it seems desirable to join forces across Europe. The specific situation and history seems to preclude the merger of existing Regions and Groups into one or more European Regions. However, the Society allows for the formation of networks and thus a European network, seems worth exploration. Alternatively, several networks could be formed within Europe. Note, for example, the importance SUSAN has had in Sub-Sahara Africa.

Along the same lines, a Network could be formed in, for example, Latin America or Asia. A Latin American Network could broaden the international collaborative efforts undertaken in Brazil and reported by Clarice Demétrio (see Appendix). When teaming up with, say the Spanish Region, efforts could be undertaken to make texts of key expository articles available in Spanish. Similarly, an Asian Network (suggested by Committee Member Byung Soo Kim), encompassing, for example, South Korea, Japan, Singapore, Taiwan, could concentrate educational efforts. Especially in view of the new and emerging fields (bioinformatics, statistical genetics, microarray analysis), such a Network could facilitate concerted efforts.

Generally, such networks might be the vehicles for increasing the participation of biopharmaceutical statisticians and other biometricians and biostatisticians that now choose not to consider IBS as their home society.

Recommendation. An Ad-Hoc Committee should explore the feasibility of a European Network, of several European Networks, of a Latin American Network, etc. In Europe, such a network could focus on an Annual (Fall?) Meeting. Such meetings could be the European version of the ENAR Spring Meeting. Whereas ENAR collaborates with IMS for its Spring Meeting, other Networks could do so with locally relevant Societies. For example, the European Network could do so with, for example, the National Statistical Societies, EUROSTAT, ISCB, the Environmetrics Society, etc. The reverse is also possible. Indeed, note that the Annual Joint Statistical Meetings in North America are not solely organized by the ASA, but jointly with ENAR, WNAR, the Statistical Society of Canada (SSC), and IMS. Such a model could be followed in Europe as well, where, for example, the

European Network takes part in ISCB through a number of dedicated (so-called sponsored) sessions. The goal should not be to create inclusive networks of all possible societies. This may become unwieldy. Rather, well-chosen strategic alliances, either for several meetings in row or Ad-Hoc for a single meeting, should be forged.

Proposed Action. The President explores the feasibility and desirability to establish local meetings and/or continental or sub-continental networks, to fully exploit the advantages of scale, during the following face-to-face IBC2004 meetings: (1) Regional Presidents and Group Secretaries and (2) Council. In areas where a critical mass is reached, the Regional Presidents and Group Secretaries involved can be asked to establish such an initiative. The Executive Director can give technical support.

Related to the previous points, it should be noted that the ENAR Spring Meeting is the single most important initiative to urge members to pay their dues. IBS should consider a similar route through its meetings. There are two important considerations. First, IBC takes place only once a year and therefore it might be sensible to consider multi-year (e.g., 2-year) membership, perhaps as an option. As stated earlier, this could be done jointly, in some cases, with other scientific societies, perhaps through a package deal. Second, the ratio of attendees over members is much lower in IBC (around 1/6 at best) than, for example, at the ENAR meeting (1/2) or other regional meetings (2/1 in the Brazilian Region). Thus, such an initiative cannot be based on IBC alone and regional meetings are to play an important role. These considerations strengthen the need for a European Network with its associated meeting.

Andrew Mead sees the establishment of Networks as a way to coordinate the activities between Regional officers. Apart from the scientific benefits, it will be a channel for administrative and strategic exchanges between Regions and Groups. One can think about sharing resources. During IBC's, all of the Regional officers could meet, rather than the Regional Presidents and Group Secretaries only.

Recommendation. Explore the use of IBC and regional meetings, including the Meeting of a European Network or of other Networks, as a major occasion for membership renewal.

Proposed Action. This point is to be taken up by the Executive Director and could be done either at the registration stand or at the IBS stand.

There is general consensus that the attraction of young members is an issue. Our membership is indeed graying. Initiatives targeted at high schools, such as described above, could help enhance the profession's and IBS' profile in society. However, we primarily have to target our master level and PhD level students, as well as our postdoctoral fellows. This is true for those working in biometry but equally well for those working in related fields, such as biology and ecology. Again, they should be attracted with clear membership benefits in mind. Some of these benefits should be targeted exclusively at them, such as, for example, a student prize award at IBC. With such an idea in mind, it is useful to note the highly successful student award program run by ENAR at their Spring Meeting. Sponsorship can be sought for the student prize (e.g., by software companies or biopharmaceutical companies) such that a net benefit results for the Society. Another source of sponsorship is the Fisher Memorial Trust. This would allow us to provide a modern incentive to

young new members, while connecting back to the esteemed roots of our profession.

To support these endeavors, IBS should develop promotional materials aimed particularly at graduate students and their advisors/departments, touting the benefits of membership and explaining the confederal structure of the Society. This material could be sent, by email, to departments all over the world.

Recommendation. Undertake promotional and other campaigns directed at graduate students and junior statisticians working in industry and the government, along the lines suggested in the Strategic Plan.

Proposed Action. To be added to the remit of the Public Relations Committee.

The ASA and many other national societies ensure the President travels around to local chapters to address the society (scientific talks, strategic views, information about the Society), etc. It looks, at first sight, this is more difficult for IBS being an international society. However, the Executive Committee has an international composition as well and the legislation of the society foresees for International Executive Committee Members to attend general assemblies and board meetings of regions. Recently, several Presidents and General Secretary Geert Molenberghs have made use of this option. It does generate a sense of inclusiveness and both Regions and Groups on the one hand and General Officers on the other hand should be made aware of this option and make it an active opportunity for contact and exchange.

Recommendation. Ensure all options for contact between Regions/Groups and the Executive Committee are used. It is important for General Officers to be present at regional meetings.

6. General Officers Nominating Committees

The current legislation regarding the appointment of candidates for General Officers (Vice-President/President, General Secretary, and Treasurer) reads:

“In April of every even-numbered year, the President shall ask each Regional President to submit nominations for Vice-president, and nominations for either General Secretary or Treasurer whichever of these two offices is due to be filled by the alternate two year rotation. These nominations must be submitted to the President before mid-September and should include a short biographical sketch and a statement attesting to the nominee's willingness to serve the full four-year term if elected. The General Secretary should send the ballot to Council Members before mid-October and Council Members should return their votes before the end of November. The preferential voting method is used. The term of office begins on January 1 of the odd numbered year following the election.”

This process is a bit unwieldy in the sense that there are a large number of Regions, and Regions are largely different in terms of size, organizational level, and involvement in the international society. At the same time, it is desirable to seek a good balance, both within the Executive Committee at any point in time, and over a string of successive officers within a given general office, from a geographical and professional background. For example, it is wise to ensure that all parts of the society are sufficiently represented over time, but also that the various biometric interests (medical,

agricultural, ecological, genetic) are well represented. Currently, the only way to ensure this is for the Executive Committee to approach certain regions at certain points in time. Clearly, this is not an elegant process since the risk of inbreeding obviously exists. Therefore, it is recommended to establish a so-called General Officer Nominating Committee (GONC). Importantly, since a representative committee will have to make proposals, it is difficult for any one individual to have a strong impact on the names that will be proposed.

Recommendation. Five names to serve on the GONC are to be proposed by the Executive Committee Members, but not by those for whom replacement is sought, and by the Chairs of the Standing Committees. The widest spread in geography and interests is to be ensured. No more than two members can be of any single Region. Each Group can have at most one member on the committee. All of the Committee's members should be Member of Council, regular or voting ex-officio. Council formally elects the GONC members. The GONC members appoint a Chair from among themselves. The GONC should propose two names, with brief motivation, biographical sketch and, for Vice-President, personal mission statement from the candidate, for each of the two General Officers that are to be elected (either Vice-President and General Secretary or Vice-President and Treasurer). The GONC should formally request suggestions for names for the open General Officer positions from (1) Council, (2) Regional Presidents, and (3) Group Secretaries. At this time, no letters of support are required. The GONC members can add names to the list at their own initiative.

The GONC should write a brief consensus report to Council, discussing all names listed and nominating at least two for each function, of course without ranking them. In addition to the nomination by the GONC, nominations for Vice-President should be accompanied by at least three letters of support, coming from Regional Presidents or Group Secretaries; these may or may not include the nominee's own Region or Group.

Members of the Executive Committee are excluded from GONC membership. Members of the GONC are excluded from nomination for the available General Offices. If the General Secretary or Treasurer, after having served one four-year term, is willing to serve for another four-year term, the GONC will be asked to evaluate the performance of the General Secretary's or Treasurer's performance in office. A statement of willingness to serve by the General Officer is needed in all cases.

Proposed Action. Appropriate legislation ought to be drafted by the Executive Committee, in particular by the Executive Director. Since this is an extremely delicate issue, not entirely free of controversy, it is important for Council to have a thorough discussion prior to implementing the legislation. Therefore, two consecutive Council circulars should be used, with one round for discussion and one round for voting.

7. Structure of Dues

This point is raised by Laurence Freedman. Although it is not within the initial assignment, it may be worth discussing whether, from a management point of view, unlinking the membership level (full or associate) from the ordering of the journal. At present, full members receive the journal and have voting rights in IBS (non-Regional) elections, whereas associate members receive only the

Bulletin and have voting rights only at the Regional level (if at all). It may be worth considering having separate dues for membership and for journals. This is especially relevant in light of discussion of increasing the cost of the journals. Unlinking membership from journal receipt may be a way of protecting the Society from membership fall-off as a result of increase in journal costs. In this way it may also be possible to abolish the idea of associate membership. Members may pay a certain basic subscription for membership (which may not be very high) and an extra amount to receive the journal/s.

Of course, the implication would be a substantial raise in base fee. We refer, for example, to the substantial base fees charged by ASA and IMS.

8. Financial Situation of IBS

This point has been covered under educational programs, sponsorship of meetings and specific aspects thereof, central collection of dues, and increase of membership due to increased membership benefits. Additional benefits could come from creative ways of promoting and selling *Biometrics* and articles therein (e.g., pay-per-view).

APPENDIX: International cooperation: a Brazilian Example of Academic Exchange

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Abstract

International exchanges are a well-known way of improving the quality of teaching, learning and research and these have been greatly encouraged in Brazil in recent years. My experience started in 1983 with a course on “Statistique Appliquée” in Gembloux, Belgium, and then from February 1986 to September 1987 as a visitor at Imperial College, London. As a result of this more than twenty colleagues from several countries have come to my Department to give talks, teach short courses and do research and colleagues from my department have participated in post-doctoral programmes. The acquired knowledge has been spread through courses I have been teaching in Brazil (20) and in other Latin America countries (6). Another very successful experience has been a programme called the Sandwich Programme involving Ph.D. students.

Introduction

Brazil is a developing country with very big contrasts, some areas very well established and others very poor. The economic situation of the country is not good and adding to this is the increasing sophistication of technology that brings a high unemployment rate. One consequence of this is the need of specialized people generating a demand for more knowledge in order to compete for a job. Universities and their graduate courses will be asked to provide this.

Graduate studies in Brazil started at beginning of the 60's and the number of courses has been increasing (571 to 1453 Masters and 200 to 821 PhDs from 1976 to 2000). International exchanges are a well-known way of improving the quality of teaching, learning and research and these have been greatly encouraged in Brazil in the last years. Organizations like CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior), CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) and the FAPs (Fundação de Amparo à Pesquisa, from several states of Brazil) have had a very important role in implementing this. CAPES and CNPq were created in 1951 and FAPESP (FAP of the state of São Paulo) in 1962. One of their aims has been to facilitate international cooperation in scientific work and promote scientific excellence in different branches of science. For this they have different kinds of programmes with grants that cover travel and subsistence expenses and tuition fees when necessary, for:

- students to go overseas to undertake Masters or Ph.D. degrees;
- post-doctorate students to go overseas for a research programme;
- scientists to participate in conferences overseas or to undertake a research

programme;

- international visitors to teach courses or to give talks;
- Ph.D. students to participate in an overseas sandwich programme to develop part of the research for the thesis.

Also CAPES has a programme to help students from other Latin American countries to come to Brazil to do a Masters or a Ph.D. The University of São Paulo also provides some funds for living expenses through CCIInt (Comissão de Cooperação Internacional) for short periods.

Advantages of this are:

- internationalization of knowledge through the exchange of information and experience between students and scientists;
- increase of scientific production;
- building of links among different Universities and Research Institutes;
- opportunity for scientists to collaborate in research projects.

On the other hand, this has become too expensive for Brazil: the Brazilian currency is weak and this makes life abroad too expensive and tuition fees prohibitive. The amount of money that the organizations have to support students and scientists is not increasing with the years and with this the number of financed projects has been decreasing. A solution to this has been to have bilateral agreements in which shared financial support comes from the countries involved, for example, the air fare from the guest country and the living expenses from the host country, like in the agreement between CNPq and the Royal Society (RS) or in most cases own resources (OR) which came from Universities or research grants.

Exchange visits

My first visit overseas was in 1983 with a three weeks course on “Statistique Appliquée” in the Faculté de Sciences Agronomiques de L'Etat et Centre de Recherches Agronomiques de L'Etat Gembloux, Belgium, with financial support of EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária) and Commissariat General Aux Relations Internationales (Consulat Général de Belgique). The course was on Planning of Experiments and Data Analysis in the Agricultural area with a similar way of treating the subject as we had in Brazil. This experience, besides the improvement of knowledge, showed me the flavor of international cooperation and the need to go abroad to have more time just to study and to learn.

With this idea I started looking for a place to go to study more and G.M. Cordeiro helped me to take the decision. I went for a year-and-a-half-post-doctorate (86/87), supervised by Prof. David Cox, at Imperial College, London, with a grant from CNPq. It was difficult at the beginning with problems of adaptation to a different culture, language and weather conditions, problems with my statistical background and high living costs, because of the weakness of our currency. But this resulted in a wonderful experience. I had the opportunity to improve my knowledge and my English and meet colleagues from around the world, building links for the future. It was when I started to learn the

theory of Generalized Linear Models (GLMs) and in 1988 I gave the first course on GLMs to the Ph.D. students of my Department, initiating a new research area. I felt I needed to learn more and this could be achieved through going abroad or bringing people to the Department.

Another important trip to Europe, again with the help of Cordeiro, with financial support of FAPESP, was in 1989 to participate of the Workshop on Statistical Modelling in Trento, Italy, with a focus on GLMs, and to work on research with A. Davison at Imperial College. Talking to Prof. Nelder I discovered that there was the agreement between CNPq and the Royal Society (RS) and this became very important in planning future exchange visits.

These three trips to Europe gave me the support to continue going overseas and start inviting people to come to my Department who helped to improve our knowledge. Table 1 shows the visitors we had in my Department from 1985 to 2002 and the advantage of this is that more people profit from the visit.

The links established with the exchange visits facilitated the contacts between people and resulted in post-doctorate training of my Departmental colleagues: A.F. Iemma in Linear Models, supervised by P. Dagnelie (Faculté de Sciences Agronomiques de L'Etat, Gembloux, Belgium), for 15 months (90/91); J. E. Corrente, in GLM, supervised by D. Firth (Southampton University and University of Oxford,UK), for 18 months (92/93); R.A. Leandro, in Bayesian Models, supervised by A. O'Hagan (University of Sheffield, UK), for 18 months (99/00); C.T.S. Dias, in Multivariate Models, supervised by W. Krzanowski (University of Exeter, UK), for 18 months (01/02); with grants from CNPq or FAPESP.

These exchange visits were especially important for me as it resulted in a well-defined line of research and very strong research links with M. Ridout (University of Kent, UK), J. Hinde (National University of Ireland, UK) and C. Brien (University of South Australia).

Sandwich Program

Another very successful experience has been a programme called the Sandwich Programme involving Ph.D. students who can develop part of the research for the thesis with a supervisor from abroad. It is important to say that this is tending to decrease because of the overseas tuition fees.

Table 1 – Visitors to the Department of Exact Sciences, ESALQ/USP, Brazil, from 1985 to 2002.

| Visitor | Period | Financial support | Activity |
|--|--|-----------------------------|--|
| P. Dagnelie (Fac. de Sciences Agron. de L'Etat, Gembloux, Belgium) | 26 - 31/07/85 07 - 14/07/01 | CNPq, OR CAPES, FAPESP | Talks |
| B. Jorgensen (IMPA, RJ, Brazil) | 27/06 - 01/07/88 02 - 05/05/89 06 - 11/05/90 | CNPq, CCInt CNPq CNPq | Short course short course short course |
| J.A. Nelder (Imperial College, London, UK) | 11 - 13/01/89 | CNPq, CCInt | Talks |
| A. Davison (Imperial College, London, UK) | 09 - 13/01/89 | CNPq, CCInt | Talks |

| | | | |
|--|--|--|---|
| N. Longford (University of Princeton, USA) | 13 - 15/02/89 | CNPq, CCInt | Talk |
| R. Palm (Fac. de Sciences Agron. de L'Etat, Gembloux, Belgium) | 07 to 21/10/89 | CCInt, OR | Short courses |
| A. Agresti (University of Florida, Gainesville, USA) | 06 - 11/05/90 | CNPq | Short course |
| D. Firth (University of Southampton, UK) | 27/07 - 04/08/90 | FAPESP, CCInt | Short course |
| M.S. Ridout (Horticulture Research International, East Malling, UK) | 29/06 - 23/07/91 | FAPESP, RS | Short courses joint research |
| C.J. Brien (University of South Australia) | 23/07 - 05/08/92 12/03 - 17/06/00 | FAPESP, OR | Short course course, talks joint research |
| A.C. Atkinson (London School of Economics, UK) | 07 - 17/01/93 | FAPESP, RS | Short course talks |
| L. Billard (University of Georgia, Athens, USA) | 14 - 18/01/93 | CCInt, OR | Talks |
| G. Reeves (Imperial Cancer Research, Oxford, UK) | 12 - 27/05/94 | OR | Talks |
| D. Hinkley (University of Oxford, UK) | 21 - 28/05/94 | CCInt, RS | Short course talks |
| J. Hinde (Exeter University, UK) | 16/07 - 13/08/95 14/04 - 26/05/96 19/07 - 03/08/97 11/07 - 26/07/98 01/04 - 15/04/00 | FAPESP, RS FAPESP, RS FAPESP, RS FAPESP, OR FAPESP, RS | Short courses talks joint research |
| D. Sorensen (Nat. Inst. of Animal Science Research Center Foulum, Denmark) | 09 - 24/05/98 | FAPESP | course talks |
| D. Cox (University of Oxford, UK) | 22/07/00 | FAPESP | |
| S. Gilmour (University of London, UK) | 09 - 13/08/99 15/08/00, 07/08/02 | FAPESP | Short course talks |
| A. Davison (Swiss Federal Institute of Technology, Switzerland) | 15/02/01 | FAPESP, OR | Talk |
| C. McCulloch (UCSF, USA) | 10 - 13/07/01 | FAPESP, OR | Short course |

| | | | |
|---|---------------|---------------|--------------|
| D. Johnson (Kansas State University, Manhattan, USA) | 10 - 14/07/01 | FAPESP, OR | Talks |
| D. Gianola (University of Wisconsin, Madison, USA) | 08 - 14/07/01 | CAPES, FAPESP | Short course |
| G. Molenberghs (Limburgs Universitair Centrum, Belgium) | 08 - 14/07/01 | FAPESP, OR | Talks |
| N. Wermuth (University of Mainz, Germany), | 12 - 14/07/01 | FAPESP, OR | Talks |
| Z.-B. Zeng (North Carolina State University, USA) | 09 - 15/07/01 | FAPESP, OR | Short course |

This kind of programme gives international experience to the students improving their knowledge and the quality of the thesis by working with a specialist on the subject. Also, they have the opportunity to participate in scientific meetings and in general present a poster. Examples of this with grants from CAPES or CNPq were: *S.S. Zocchi* supervised by A. Atkinson (London School of Economics, UK), for 16 months (95/96); *S.M. Freitas* supervised by J. Hinde (University of Exeter, UK), for 18 months (99/00); *S.R. Giolo* supervised by R. Henderson (University of Lancaster, UK), for a year (01/02); *R.R. Lima* supervised by M. Ridout (University of Kent, UK), for a year (03/04), and *C. Candolo* supervised by A. Davison (Swiss Federal Institute of Technology, Switzerland), for a year (99/00).

Latin American cooperation and others

Cooperation between Latin American countries is another common type of exchange. CAPES has a programme to help students from other Latin American countries to come to Brazil to do a Masters or a Ph.D. These students, after returning to their own countries, invite some of their Brazilian lecturers to visit them. In this aspect I have been giving talks and teaching myself two courses on theory and application of GLMs in Argentina, one in Peru and two in Colombia and jointly with John Hinde one in Argentina and one in United States.

Also the cooperation inside Brazil is extensive. For example, I have taught more than 20 courses on theory and application of GLMs since 1988.

Final remarks

The international cooperation has proved to be a very successful experience in my Department opening new research areas, increasing and improving scientific production, giving opportunity for lecturers and students to collaborate in research projects and building links with other Universities and Research Institutes. For the future new visits are planned to build on previous collaborative work. There are a number of strands of ongoing work that need to bring to completion, while at the same time starting out on new avenues of associated work

There is also the value of the link for the visitor, the opportunity to meet different problems, especially perhaps in the biometrics area, recruiting good students through the sandwich programme (or general admission), post-doctorate links, and also the chance to strengthen the international network of statistics.

References

CAPES – <http://www.capes.gov.br>

CNPq – <http://www.cnpq.br>

FAPESP - <http://www.fapesp.br>