

## THE INTERNATIONAL SOCIETY OF BIORHEOLOGY

Reprinted in part from Newsletter No. 1 sent to members (October 1969)

THIS newsletter will appear periodically to inform members of the Society and those who wish to become members, of the activities of the Society. It is hoped that this newsletter will foster contact between the officers of the Society and the membership.

The Editors and Publishers of *Biorheology* will make available in this Journal information concerning the activities of our Society which would be of interest both to members and to other readers of *Biorheology*.

### *Name and members of the Executive Council of the newly constituted Society*

At the business meeting of the international Society of Hemorheology held on Friday, 1 August 1969 in Heidelberg, Germany it was agreed that the name of the Society would be changed to the *International Society of Biorheology*. At that business meeting the following officers of the new Society were elected.

### *President*

Professor A. L. Copley (U.S.A.), Hemorrhage and Thrombosis Research Laboratories, V.A. Hospital, East Orange, New Jersey 07019 and Department of Pharmacology, New York Medical College, New York, N.Y. 10029.

### *Vice Presidents*

Professor Dr. H. Hartert (W. Germany), Medizinische Klinik, Städtisches Krankenhaus, Kaiserslautern.

Professor S. G. Mason (Canada), Department of Chemistry, McGill University, Montreal and Pulp and Paper Research Institute of Canada, Montreal.

Professor S. Oka (Japan), Department of Physics, Tokyo Metropolitan University, Tokyo.

Dr. V. I. Vorob'ev (U.S.S.R.), Institute of Cytology, Academy of Sciences, Prospekt Malkina 32, Leningrad 7-121.

### *Secretary-General*

Professor G. V. F. Seaman (U.S.A.), Division of Neurology, University of Oregon Medical School, Portland, Oregon 97201.

### *Vice Presidential Secretaries*

Secretary to Professor Hartert: Dr. Holger Schmidt-Schönbein, Physiologisches Institut der Universität München 15, Germany.

Secretary to Professor Mason: Professor H. L. Goldsmith, University Medical Clinic, Montreal General Hospital, 1650 Cedar Avenue, Montreal 25, Canada.

Secretaries to Professor Oka: Professor Eiichi Fukada, Rikagaku Kenkyusho, Yamato-Machi, Saitama Pref., Japan.

Dr. Leopold Dintenfass, Department of Medicine, University of Sydney, Sydney, Australia.

Secretary to Dr. Vorob'ev: To be appointed.

*Treasurer*

Professor S. Witte (W. Germany), Medizinische Klinik und Poliklinik der Universität Nürnberg-Erlangen.

*Chairman Committee on Nomenclature*

Dr. G. W. Scott Blair (England), Grist Cottage, Iffley, Oxford.

## MINUTES OF BUSINESS MEETING

4.30 pm Friday, 1 August, 1969 at Pathologisches  
Institut der Universität, Heidelberg, Germany

### *1. Name of the Society*

THE PRESIDENT of the Society, Professor Copley, opened the meeting and initiated discussion on the name of the Society. It was pointed out by him to the membership that it was difficult in some countries for a scientist to obtain travel funds for participation in a conference of an international scientific society. This was first brought to the President's attention three years ago by Professors Fukada and Oka of Tokyo. The President then reported that two years ago he approached Professor Aharon Katchalsky President of the International Union for Pure and Applied Biophysics (IUPAB) with the request that the International Society of Hemorheology become affiliated with the IUPAB. Professor Katchalsky supported our Society's request with the proviso that there was a need to broaden the scope and aims of our Society to encompass the entire science of Biorheology and not merely that of its most active branch, Hemorheology. Subsequently the President had several discussions with Professor Katchalsky regarding this matter. Several Committees of the IUPAB dealt with this problem at their meetings in Boston and in Rome. The President was informed that these meetings favored the inclusion of biorheology in the activities of the IUPAB. He was then invited to participate in a Conference held at Cambridge, England, the Executive Committee of the IUPAB in June 1968, which, due to the fatal illness of Mrs. Copley, he could not attend. However, he delegated Dr. Scott Blair to represent him at this meeting in which Professor Aharon Katchalsky, Professor J. Kendrew and Professor A. K. Solomon participated. This led to the suggestion by the Council of IUPAB in a letter of July 27, 1968 from Professor Solomon, Secretary General of the IUPAB, that it would welcome a proposal from an international group representing the whole field of biorheology to become an affiliated commission of IUPAB.

After this introduction, Dr. Scott Blair urged the membership to let the Society change its scope and expand so that it would represent the entire science of biorheology. There then followed considerable discussion on the merits of changing the name of the Society to mirror the inclusion of all biorheological fields. It was felt that persons who work in biorheological fields other than hemorheology would need the backing of an International Society. Such a broadened Society promises to stimulate the exchange of ideas and information among all biorheologists and thus advance hemorheology as well. This led to the adoption of the new name of the Society and its new scope and aims. The President was asked to inform by cable Professor Aharon Katchalsky of these changes and to ask him to make this information available to the Council and to the third International Biophysics Congress of the IUPAB, to be held from August 29 to September 3, 1969, in Cambridge, Massachusetts, U.S.A.

### *Constitution and Bye-laws of the Society*

The President appointed Professors Martin J. Levy and James L. Martin several months ago to draft the documents of the Society (formerly the International Society of Hemor-

heology). Mr. Benjamin Gollay, attorney at law, 60 East 42nd Street, New York, N.Y. will use the documents for the purpose of tax exemption of the Society.

The President pointed out that the Constitution and Bye-laws had been made up from scrutiny of those of other similar societies. Professor Harold Wayland suggested that a clause should be included to enable the disposal of funds of liabilities should the Society wind up. Professor Wayland moved that the Executive Council should modify the Constitution and By-laws, with the change of name already voted upon, so as to make it a legal document. The motion was adopted unanimously. The President was asked to take steps through the lawyer Mr. Gollay to change the Society's name legally and to have the tax exempt status applied for, extended to the now altered Society.

#### *Election of Officers of the Society*

The President announced that all Scientific Committees had been dispensed with except the Committee on Nomenclature. It was suggested by Professor A. Silberberg that in general the Chairman of the Scientific Committees were faced with the duties of organising papers in their assigned areas and it might be more satisfactory in future if the Conference Chairman were given more latitude in the design of the Scientific Program. The President suggested that the topics should be chosen in relation to the contemporary interests of Biorheology, it was felt that Standing Committees were awkward and rigid and that a more flexible organization would perhaps be more practical.

Professor George Bugliarello resigned from the position of Secretary as he will now be extremely busy in his new position as Dean of the School of Engineering, University of Illinois at Chicago, Circle, Box 348, Chicago, Ill. 60680.

The question of members of the Council was then considered. The President proposed an incomplete slate of alternative names, representing different fields of biorheology. It was felt that the full list of names and their appointment to the Council should be handled by the Executive Council. The view was expressed by Professor Silberberg and others that the number should be limited to not more than about twenty persons. However the President asked that this number should be increased to thirty persons. He felt that the members of the Council should reflect a proper representation of activities of the Society and cover as many areas of biorheology as possible. The interest and involvement of the Council members in the affairs of the Society was considered to be of importance. It was agreed that the Council membership should be limited to thirty leading investigators.

A slate of Nominations for Officers of the Society was made by the Executive Council and presented to the membership. All those nominated to hold office in the Society were elected and are as listed earlier in this Newsletter.

#### *Treasurer's report*

Professor Witte reported a balance of US \$1757.50 and D.M. 100.00. The account of the Society is with the Deutsche Bank, Karlsruhe, W. Germany, account number 362590. The account enjoys a tax exempt status. Existing funds will be used mainly to cover expenses incurred by the President, Secretary-General and Secretaries. The legal fees in drawing up the Constitution and By-laws for the purpose of tax exemption of the Society are, for example, likely to be considerable. Professor Witte reported that there are 94 paid up members of the Society. Membership dues are at present ten U.S. dollars (\$10.00) per annum for ordinary members and five dollars (\$5.00) for emeritus members. Initiation fees are presently set at fifteen dollars (\$15.00), they were three dollars (£3.00) for Charter Members. Some discus-

sion took place regarding membership dues and it was generally felt that there should not be any initiation fees. The possibility of including free copies of the Proceedings or of Biorheology in with the annual dues was discussed. It was agreed that the Executive Council in consultation with the Treasurer should determine the dues and associated benefits. It was suggested that there should be a printed membership card. Professor. G. Quadbeck and Dr. Joseph Zimmer were elected as auditors.

#### *Time and place of the next meeting*

It was proposed that the next meeting of the Society should be in three years time and should be in conjunction with the International Congress on Rheology. Professor Mason stated that the next meeting of the International Congress on Rheology would be in either Prague or Lyon. Professor Mason indicated that the International Committee on Rheology of which he, Professors Oka and Joly are members would offer every help in the organising of Biorheological Sessions. The question of who would be Conference Chairman and who would comprise the Organising Committee in Prague or Lyon was raised by several members. This matter was left for decision to the President and the Executive Committee. It was agreed that the meeting of the Society to be held in six years time should be in Eastern Canada or the United States.

#### *Other Business*

The educational activities of the Society were considered including topics for the next Conference with perhaps even pre- or post conference symposia. Professor Silberberg suggested some smaller meetings in different countries on various aspects of Biorheology for example, for instance, perhaps in two years time, one on tissue rheology.

Telegrams containing good wishes were sent to three ailing members of the Society, Professor Karl Weissenberg, Professor Magnus Gregersen and Dr. H. H. Pfeiffer. A telegram was sent to Dr. Vorob'ev asking if he would be prepared to accept a Vice-Presidency in the Society.

## THE POISEUILLE GOLD MEDAL AWARD CEREMONY

DR. GEORGE W. SCOTT BLAIR who had been elected by the Council of the Society of Hemorheology to be the recipient for the 1969 Poiseuille Gold Medal Award was honored at a ceremony at which Professor A. L. Copley presided. The President gave an account of Dr. Scott Blair's achievements and then made the presentation of the Poiseuille Gold Medal. This was followed by a lecture given by the awardee. Both texts will appear in the Proceedings of the Second International Conference on Hemorheology, edited by H. Hartert and A. L. Copley and to be published by Springer-Verlag, Berlin-Heidelberg-New York, in 1970. The award is sponsored by Pharmacia of Uppsala, Sweden.

## PRESIDENTIAL ADDRESS FOLLOWING THE PRESENTATION OF THE AWARD TO GEORGE WILLIAM SCOTT BLAIR

ALFRED L. COPLEY

*Herr Ehrenpräsident Professor Quadbeck, Herr Konferenz-Präsident Professor Hartert, Members and  
Friends of our Society, Ladies and Gentlemen*

YOU ALL know the person whom our Society is honoring at this our Second International Conference here at the University of Heidelberg. George William Scott Blair was born in 1902 in Weybridge, Surrey, England, of Scottish parents. He went to the famous Charterhouse School in southern England and then to Oxford University in 1920 where he studied chemistry under Sir Cyril Hinshelwood. In 1921 he spent one long vacation in France and so began his interest in international cooperation. One day he told me that he almost went to Heidelberg to study German but was most disappointed that this did not materialize.

After completing his Bachelor's course in Oxford which included one year's research on colloids, necessary for Honors, he went, in 1924 as colloid chemist to a commercial firm in Manchester. There, he started work on the viscometry of flour suspensions, publishing his first "rheological" paper in 1927.

For ten years (until 1937) he was on the Staff of the Physics Department at Rothamsted Experimental Station, where he worked on the rheology of soils and clays and, with his colleagues, made the first quantitative study of the "sigma phenomenon", which Robin Fåhræus, our Society's first recipient of the Poiseuille Award, independently discovered for blood a year or two later.

George Scott Blair spent a year from 1929 to 1930 in the United States on a Rockefeller Fellowship, working under Prof. Wilder D. Bancroft at Cornell University on the rheology of ceramic clays and invented a test for measuring their plasticity.

He also had the opportunity of meeting most of the American pioneers in the newly-named Science of Rheology. On returning to Rothamsted he worked on honey and flour doughs and made a study of the differences in bakers' techniques in England and France. With the well-known German psychologist Prof. David Katz, he also studied psychophysical problems in bread making.

In 1937 he became Head of the Chemistry Department of the National Institute for Research in Dairying near Reading, but his own research work remained rheological, mainly on cheese and butter. Later came the war, and he worked part-time on plastics and part-time, for the first time, in the field of biorheology—on human pre-natal mammary secretions, synovial fluids, bull semen, bovine and human cervical mucus. Later, he discovered tests for ovulation and pregnancy in cows and visited Israel three times in connection with this work.

His Department gradually developed physics as well as chemistry and finally divided. Scott Blair was then appointed Head of the Physics Department.

He was a founder member and Secretary and, later, President of the British Society of Rheology. He helped to organize the 1st International Congress on Rheology in Scheveningen in 1948, where I first met him personally. He was Secretary of the 2nd International Congress on Rheology in Oxford in 1953. He was also a member of the Committee on Rheology set up by the International Council of Scientific Unions, and was co-author with Prof.

J. M. Burgers of a Monograph on Rheological Nomenclature. He is now Chairman of the British Standards Institute Committee on Rheological Nomenclature.

He has lectured on rheology in his own country and in the United States, France, Germany, Holland, Israel, Switzerland, Portugal and Sweden.

My first contact with George Scott Blair was when he invited me during the war to be Chairman in 1944 of a meeting in Oxford on rheology and medicine which he helped to organize. Unfortunately, because of the war I could not go to England. Later, after the war, we met, and have been close friends ever since. This friendship has a direct bearing on the development of the Science of Biorheology, since as you know he and I are joint Editors-in-Chief of the International journal *Biorheology*. There is nothing I enjoyed and am enjoying more than in working with him in this task towards the advancement of our science of Biorheology. Hemorheology, of course, is one of its most important branches. Dr. Scott Blair was closely associated in the organization of three conferences particularly. One was at the University of London, Charing Cross Hospital Medical School, in 1958 on the "Flow of Blood in Relation to the Blood Vessel Wall", the other in the Physiology Laboratory of Oxford University in the following year 1959, which was organized by the Faraday Society and the British Society of Rheology. This Conference on biorheology was entitled "Flow Properties of Blood and Other Biological Systems". Finally he was a member of the Organizing Committee of the 1st International Conference on Hemorheology at the University of Iceland in 1966.

Scott Blair also made substantial contributions to Psycho-Rheology. His main concern was to study the thresholds for assessing the viscosity of highly viscous liquids and the rigidity of elastic solids. He developed a "theory of quasi-properties" introducing fractional differential equations to relate the assessment of sensations to physical stimuli. These equations are now used in modified form for studying the creep of metal alloys.

During the last five years before his official retirement in 1967, on grants from the United States National Institutes of Health and later from the British Heart Foundation, he worked on flow and coagulation of blood, subjects in which he became interested when he came and worked with me during the three years of my stay in London from 1957 to 1959, first during my tenure at the Medical Research Laboratories of Charing Cross Hospital and then at the Department of Pathology, the Royal College of Surgeons of England.

Now, although officially retired, George Scott Blair works at the Oxford Haemophilia Centre, where his research is supported by a grant from the British Heart Foundation.

He has always had a special interest in international cooperation and for this purpose he has made rather a hobby of learning modern languages. He tells me that he ascribes this largely to the influence of two men under whom he was proud to work: Sir Cyril Hinshelwood at Oxford and Sir John Russell at Rothamsted.

George Scott Blair speaks French and some Russian, Hebrew, Dutch, German, Spanish, and three years ago our Icelandic friends were amazed to be addressed by him in Icelandic. George Scott Blair shares this interest in languages with another contemporary Englishman of high distinction. I believe, it was during the summer of the same year, when on a first visit to Iceland his compatriot Prince Philip, the Duke of Edinburgh, addressed Icelanders in Icelandic. Apart from Scott Blair's hobby for languages, he is a lover of music. In his hobby of this universal international language, he is joined by his wife Rita, who, as the dedication of his recently published book on Elementary Rheology reads "has lived in an atmosphere of Rheology for over forty years". We are all happy to see his wonderful companion here, witnessing the award ceremony in honor of her distinguished husband.

George Scott Blair is a member of the Groupe Français de Rhéologie and of the Deutsche Rheologische Gesellschaft. The latter honored him some years ago with the Herbert Freundlich Medal (Herbert Freundlich Medaille). This particularly pleased him, because Herbert Freundlich had been his doctorate examiner.

George Scott Blair holds two doctorate degrees in the University of London and is a Fellow of both the Royal Institute of Chemistry and of the Institute of Physics. He has written five books (one with Professor Markus Reiner), and over 250 papers in various fields of rheology.

I have given you this account of Dr. Scott Blair's career to demonstrate the uniqueness of his attainments. He has worked in more fields of rheology than anyone else. George Scott Blair may well be considered as the only rheologist who has done pioneering work in so many fields.

It makes me very happy, therefore, to present to Dr. Scott Blair on behalf of the International Society of Hemorheology the Poiseuille Gold Medal Award. This year marks the centenary of the death of this great Frenchman, the physiologist and physician Jean-Leonard-Marie Poiseuille, who lived all his life in Paris from 1797 to 1869. One side of the Medal bears the name, portrait and signature of this first hemorheologist. On the other side, a dedication is inscribed which reads:

TO  
 GEORGE W. SCOTT BLAIR  
 PIONEER IN RHEOLOGY AND BIORHEOLOGY  
 FOR  
 HIS RESEARCH IN HEMORHEOLOGY  
 PRESENTED AT  
 SECOND INTERNATIONAL CONFERENCE  
 UNIVERSITY OF HEIDELBERG  
 27 JULY-1 AUGUST 1969  
 THE INTERNATIONAL SOCIETY OF HEMORHEOLOGY

George, we thank you very much. We all extend to you our very best wishes. Congratulations!

REFERENCES

I. *Books*

- [1] *An Introduction to Industrial Rheology* (Churchill, London 1938. German Edition 1939.).
- [2] *A Survey of General and Applied Rheology*, Pitman, London 1943, 2nd Impression 1945, 2nd Edition 1949.
- [3] *Rheology in Relation to Pharmacy and Medicine*. (Monograph) Pharmaceutical Press, London 1948.
- [4] *Measurements of Mind and Matter*, Dennis Dobson, London 1950.
- [5] *Agricultural Rheology* (with M. Reiner), Routledge and Kegan Paul, London 1957.
- [6] *Elementary Rheology*, Academic Press 1969.  
 (French, German and Japanese translations planned.)

*Editor and Part-Author:*

*Foodstuffs: Their Plasticity, Fluidity and Consistency*, North Holland Publ. Co., Amsterdam 1953.  
 Japanese Ed. 1956.

II. *A Few Principal Papers in Fields Other Than Hemorheology*

- [1] *On the Rheology of Flour-Doughs*, SCHOFIELD, R. K. and SCOTT BLAIR, G. W. *Proc. Roy. Soc. (A)* **138**, 707, 1932; **139**, 557, 1933; **141**, 72, 1933; **160**, 87, 1937.

- [2] *Subjective Assessments of Viscosities*, SCOTT BLAIR, G. W. and COPPEN, F. M. V., *Proc. Roy. Soc. (B)* **128**, 109, 1939.
- [3] *Non-Newtonian Time-Scales in Relation to Quasi-Properties*, SCOTT BLAIR, G. W., VEINOGLU, B. C. and CAFFYN, J. E., *Proc. Roy. Soc. (A)* **189**, 69, 1947.
- [4] *Theory of Quasi-Properties*, SCOTT BLAIR, G. W. and CAFFYN, J. E., *Phil. Mag.* **40**, 80, 1949.

#### *Biorheology, an International Journal*

Our members are urged to submit papers for consideration for publication in *Biorheology*. The Journal has become the leading journal in this field. *Biorheology* may be considered the Journal of our Society, although up to the present such an official status has not been agreed upon. Contributions in English, German or French should be submitted to one of the Editors-in-Chief, or to any Editor or members of the Advisory Board.

Pergamon Press has officially informed the President, that it would grant the concessionary subscription rate for the Journal, *Biorheology* to the members of the Society. The special rate is £10 per annum, compared with the normal personal subscription rate of £15. The reduced rate is operative if the Journal is for the personal use of a member only.

#### *Membership of the Society*

Until the President and Executive Committee have determined new arrangements for membership and discussed the scale of membership fees the Society will operate in accordance with the rules of the former International Society of Hemorheology. Our very young Society wishes to enlarge its membership and therefore details on membership and subscriptions will be made available to you as soon as possible.

#### *International Union of Pure and Applied Biophysics (IUPAB)*

The following telegram was received by the Society indicating out affiliation with IUPAB. "GENERAL ASSEMBLY OF IUPAB ACCEPTED BIORHEOLOGY AS AFFILIATE ORGANIZATION. SILBERBERG ELECTED LIAISON REPRESENTATIVE. CORDIALLY AHARON KATCHLASKY. The President of our Society subsequently received a letter dated October 16, 1969 from Professor A. K. Solomon, Secretary General of IUPAB making our affiliation with the IUPAB official. An excerpt of this letter follows:

"I am happy to inform you that at the Fourth General Assembly the request of the International Society of Biorheology to become an Affiliated Commission of IUPAB was approved subject to the usual formalities. I am enclosing a copy of the statutes of IUPAB in which the privileges and responsibility of affiliated commissions are described in section VII, items 18, 19, 20, and 21.

As you see from item 19 it is necessary for the Council to approve the constitution and statutes of its Affiliated Commissions, which has not in the past, presented a problem. Could you please let me have a copy of your statutes to bring before the Executive Committee at its meeting in early January, 1970?

I am glad to welcome the Biorheologists formally as an Affiliated Commission of IUPAB and look forward to a pleasant and fruitful relationship."

#### *Tax Exempt Status of the Society*

The District Director, Internal Revenue Service, United States Department of the Treasury, informed the President in a letter dated November 6 1969, that our Society has become tax exempt. This news is most welcome since it will now be possible to receive funds from firms, institutions and private persons in the United States and possibly also other

countries, due to this status. The membership is asked to find out from the tax authorities of the government of their respective country whether and to what extent the tax exempt status of our Society in the United States is effective in their country. The membership is invited to secure contributions for our Society and have them sent to our Treasurer, Professor S. Witte.

GEOFFREY F. F. SEAMAN

*Secretary General*

A. L. COPLEY

*President*