INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS

REPORT 1968

IUTAM
Rigensgade 13
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A. Summary Record of the General Assembly of IUTAM on August 29, 1968

The General Assembly was held in Tresidder Union of Stanford University on Thursday, August 29, 1968 at 8 p.m.

Present:

a) Representatives and observers of national adhering organizations


b) Elected Members

J. M. Burgers
Y. H. Ko
Sir Geoffrey Taylor

c) Representative of IUTAM Congress Committee

W. T. Koiter
Agenda

The following agenda for the meeting was approved:

1. Opening of the meeting by the President.
2. Report of the Secretary.
4. Eventual modification of IUTAM annual dues.
5. Fiscal decisions on Symposia suggested for 1969 and later.
6. Report of the President on relations with ICSU.
7. Report of the Secretary of the Congress Committee of IUTAM.
8. Cancellation of a membership as adhering organization of IUTAM.
8[a] Decision on applications for membership as adhering organizations of IUTAM.
10. Coordination of international activities in the field of experimental mechanics.
11. Date and place of the next General Assembly.
12. Varia.

Proceedings of the General Assembly

Item 1 — Opening of the meeting by the President

Professor Maurice Roy, President of IUTAM, opened the meeting with a short address, welcoming the members and observers present and thanking Prof. N. J. Hoff, President of the XIIth Congress, his General Secretary Prof. C. R. Steele and all members of the local organizing Committee for the XIIth International Congress of Applied Mechanics as well as the University of Stanford for their hospitality, making it possible for IUTAM to hold this General Assembly on Tresidder Union.

Item 2 — Report of the Secretary

The Secretary Prof. H. Göttler submitted the following report to the General Assembly on the activities of IUTAM since the last General Assembly in Vienna on June 25, 1966:

Mr. President,

Dear Colleagues,

It is inevitable that, in the period of approximately two years between our meetings, we must fear to have to record the death of a number of members of the General Assembly who have, in past years, served our Union. To our regret, we have suffered such losses since our last meeting in Vienna in 1966.

May I ask you to stand in honour of our deceased members

Professor Gustavo Colonnetti, Representative of the Consiglio Nazionale delle Ricerche, the Italian organization adhering to IUTAM, died on March 21, 1968, at the age of 81. He was Representative of this organization in the General Assembly of IUTAM since it became the Italian organization adhering to IUTAM in 1949. All of you will remember that Prof. Colonnetti — at the age of 73 — was the President of the Xth International Congress of Applied Mechanics held at Stresa eight years ago.

Professor A. Gilep, President of the Hungarian National Committee for IUTAM and Representative of this Committee in our General Assembly since 1963, died in October of 1967.

His successor in the presidency of the Hungarian Committee, Professor E. Resz, who would have represented the Committee in our General Assembly, died shortly after, in May of 1968.

On your behalf, I have assured the Consiglio Nazionale delle Ricerche and the Hungarian National Committee of our feelings of sympathy.

I. Changes of Members of the General Assembly

Since our last meeting in Vienna in 1966 the following changes in the representation of national organizations adhering to IUTAM have been made:

1) The General Assembly has unanimously approved the change of membership status of the Italian "Consiglio Nazionale delle Ricerche" from category I to category II, this change having become effective in 1966. Prof. G. Colonnetti was joined by Prof. E. Resz as second representative. Since the death of Prof. Colonnetti a second representative has not yet been elected.

2) Professors A. Caquot, R. Thiery, and H. Villet resigned as representatives of the "Comité National Français de Mécanique". They have been replaced by Prof. Paul Germain, Prof. Luc Gasabier, and Dr. Robert Legendre, the fourth French representative remaining, as in the past, our President Prof. Maurice Roy.

3) Prof. L. J. F. Broer resigned as representative of the Section for Mechanics of the Royal Institute of Engineers of the Netherlands. He has been replaced by Prof. J. O. Hiemenz.

4) Prof. N. Rost has joined Prof. H. Ziegler as the second Swiss representative in our General Assembly.

5) The national organization representing India in our General Assembly has been changed from the Department of Science of the Ministry of Education to the Indian National Committee for Theoretical and Applied Mechanics, National Institute of Sciences of India (New Delhi). The Chairmen of the National Committee Dr. S. Bhagavantam is also its representative in our General Assembly.
II. Meetings of the Bureau

(1) First Meeting
The Bureau met at Copenhagen on the 6th of September, 1967. An extensive summary record of this meeting was published in the IUTAM Report 1967, and a preprint of the record was sent to you shortly after the meeting. As usual, the main subject was the organization of future IUTAM Symposia already decided by the General Assembly in Vienna for the years 1967 and later, and the discussion of Symposia envisaged or proposed at the time for 1968 and later. Decisions of the Bureau subject to your approval were submitted to you by circular and were unanimously approved, thus becoming effective.

(2) Second Meeting
The second meeting was held here at Stanford two days ago, on the 27th of August 1968. It was mainly devoted to the preparation of our General Assembly of today and to the discussion of the most important items of the agenda of the meeting.

III. Symposia held in 1967 and 1968
Since the General Assembly in Vienna in June of 1966 and since the Symposia held in 1966 before or in immediate connection with our meeting in Vienna, the following five Symposia have been held:

In 1967:
(1) IUTAM Symposium on the Generalized Cosserat Continuum and the Continuum Theory of Dislocations with Applications, Friedensstadt and Stuttgart, August 28 to September 2, 1967 (Chairman: Prof. E. Kriinner, Clausthal);
(2) Second IUTAM Symposium on the Theory of Thin Shells, Copenhagen, September 9 to September 12, 1967 (Chairman: Prof. F. Nicodemi, Copenhagen);

Reports on these three Symposia were published in our IUTAM Report 1967. The Proceedings of (1) and (2) will be published by Springer-Verlag, Berlin, those of (3) by Dunod, Paris.

In 1968:
(1) IUTAM Symposium on Thermoelectricity, East Kilbride, Glasgow, June 28 to June 29, 1968 (Chairman: Prof. B. A. Boley, New York); and during last week
(2) IUTAM Symposium on High-Speed Computing in Fluid Dynamics, Monterey, Cal., August 18 to August 24, 1968 (Chairman: Dr. F. N. Frensöe, Washington).

The Proceedings of (1) will be published by Springer-Verlag of Vienna, those of (2) will appear as supplement to the journal "The Physics of Fluids". Short reports on these symposia will be published, as usual, in our annual IUTAM Report for the year 1968.

IV. Symposia already decided for 1969 and later
The following information will be of importance in connection with item 5 of our agenda.


(The names of the members of the Scientific Committee have been published in IUTAM Report 1967.) The preparation of this Symposium is well on the way. The Bureau decided that the IUTAM allocation for the Symposium will be $5,000,-.

(2) IUTAM Symposium on the Stability of Continuum Systems, Karlruhe, in 1969, shortly before or (less probably) shortly after the Symposium mentioned below under (3). Co-Chairman: Prof. L. J. B. Bower and Prof. H. Leipholz. (The names of the members of the Scientific Committee have been published in IUTAM Report 1967.) The scientific preparation is going on well. The Bureau decided that the IUTAM allocation for the Symposium will be $5,000,-.


The constitution of the Scientific Committee is now complete.

Co-Chairman:
Prof. S. B. Pikelner (IAU)
Sternberg Astronomical Institute
Moscow B-234 (USSR)

and
Prof. L. I. Sedov (IUTAM)
MGU, Zone 1, kw. 84
Moscow B-234 (USSR)

Members representing IAU:
Dr. F. D. Kahn (UK)
Prof. A. B. Severny (USSR)
Dr. R. N. Thomas (USA)
Dr. J.-C. Zahn (France)

Members representing IUTAM:
Prof. H. F. Clauser (USA)
Prof. J. P. Guiraud (France)
Prof. M. J. Lighthill (UK)
A detailed description of the scientific program, as suggested by the co-chairmen, is available. The Bureau decided that the IUTAM allocation for this Symposium will be § 2,500.

Chairman: Prof. F. K. G. Odqvist. (The list of members of the Scientific Committee has been published in *IUTAM Report 1967*.) The preparation of the Symposium has been started in January, 1968.

(5) ***IUTAM Symposium on Nonsteady Flow of Water at High Speeds***, Leningrad, 22-26 June, 1971. The Bureau, in its meeting two days ago, discussed proposals submitted by Prof. Sedov for the members of the Scientific Committee. The result of this discussion is the following list:

Prof. L. I. Sedov, Chairman (USSR)
- MGU, Zone 1, kv. 84
- Moscow B-234 (USSR)
- Prof. M. Plesset (USA)
- Prof. R. Siemons (France)
- Prof. M. Tulin (USA)
- Prof. L. Wijngaarden (Netherlands)

Two further members, one from Great Britain and one from Germany, are to be added to this list. The Bureau decided that this Symposium will be held at Leningrad, and not in May, as formerly announced, but in June: 22-26 June 1971.

Plans for further symposia, some of which have already been carefully considered and recommended by appointed Study Groups and are now ripe for final decisions, will be discussed today under item 5 of our agenda.

V. *Publications of IUTAM*

Since our last meeting in Vienna on June 25, 1966, the following publications have been issued:


VI. *Representation of IUTAM in other organizations*

(1) Prof. M. Ray, President of IUTAM and IUTAM Representative on the Executive Committee of ICSU, attended the VIth Meeting of the Executive Committee of ICSU at Monaco on 7 and 8 October, 1966, and the VIIth Meeting of this Committee at Rome on 9 and 10 October 1967.

(2) Prof. M. Ray, President of IUTAM, acted as Honorary Chairman of the First Canadian Congress of Applied Mechanics held in the Université Laval, Quebec, May 22—26, 1967.

(3) Prof. F. K. G. Odqvist, Representative of IUTAM on CODATA, the International Committee on Data for Science and Technology, attended the second meeting of this Committee in Moscow, May 31 — June 2, 1967. Since he was not able to attend the third meeting held at Frankfurt on June 28 and 29, 1968, Prof. E. Becker kindly accepted to act as his deputy, and reported to the Bureau and to Prof. Odqvist.

(4) Prof. L. I. Sedov kindly acted as Representative of IUTAM at the XVIIIth International Astronautical Congress organized by the International Astronautical Federation (IAF) in Belgrade, September 24—29, 1967.

(5) Prof. H. Zingler kindly acted as Representative of IUTAM at the XIVth General Assembly of IUGG held at Zürich, September 25 — October 7, 1967.

(6) Prof. K. Wiegardt kindly accepted to act as Representative of IUTAM in the Joint Ad Hoc Group for the Study of External Forces Affecting Ships, and attended the first meeting of this Group at London, April 17—19, 1968.
Dear Colleagues,

In closing this report, please allow me to say a few more personal words. After reporting to you in Vienna on the first two years of my term as Secretary of our Union, I have now given you my report on the second two years of my four years term, this term now seen to expire. It is my wish to thank our President and our Treasurer as well as all other members of the Bureau for four years of excellent and most kind cooperation, resulting in four years of much pleasure and, I believe, of some successes. It is also my wish to thank many members of the General Assembly for their continual help, advice, and encouragement on so many occasions. I am greatly indebted to all those who have regularly sent me their helpful answers to my circulars. As I have stated in Vienna, it is this active interest of so many members of our General Assembly that has been, and will continue to be, the best insurance for the success of our endeavours to serve, to the best, the interests of our science and to deepen our cooperation in a truly international spirit. It is, indeed, my wish to thank you all very much.

The report of the Secretary was unanimously adopted.

Item 3 — Report of the Treasurer

The Treasurer of IUTAM, Prof. W. T. Koiter, submitted a detailed statement of receipts and expenses of IUTAM and of the special account of the Congress Committee of IUTAM in the period January 1, 1968 to June 7, 1968. The report of the Treasurer was unanimously adopted.

Item 4 — Eventual modification of IUTAM annual dues

The General Assembly of IUTAM unanimously adopted the following resolution:

The General Assembly

1. Recognizes the effect of continued inflation all over the world on the budget of IUTAM,

2. Resolves to increase the annual subscription of adhering organizations by raising the unit of subscription from $75 to $100, retaining the number of units due in the various categories of adherence,

3. Authorizes the Bureau to decide in its meeting in 1969 whether the increase in subscription becomes effective in 1971 or 1972.

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Item 5 — Final decisions on Symposia suggested for 1969 and later

1) Symposia carefully considered and recommended by appointed Study Groups

Along with the five Symposia already decided for 1969, 1970, and 1971 and described above under item 2 in the Report of the Secretary, four further proposals have been recommended by Study Groups appointed by IUTAM.

6) Joint IUTAM/IUPAP Symposium on Electrohydrodynamics

This subject was suggested by Sir Geoffrey Taylor. It has now been warmly recommended in a report by a Study Group with Prof. J. R. Melcher of MIT acting as Secretary. The report gives a detailed description of the scope of the program.

In agreement with the suggestion made by the Study Group, the General Assembly decided that this Symposium will be held at the MIT, Cambridge (USA) from March 31 to April 2, or 3, 1969. The IUTAM allocation will be $2500.—

The Scientific Committee will consist of the following members:

Sir Geoffrey Taylor, Chairman (UK)
Prof. J. R. Melcher, Secretary (USA)
Prof. N. Felici (France)
Prof. W. Fiszdon (Poland)
Prof. C. D. Hendricks (USA)
Prof. G. A. Lyubimov (USSR)
Prof. A. Waltz (Germany)

7) IUTAM Symposium on Dynamics of Ionized Gas, Tokyo (Japan)

The Study Group appointed to investigate this proposed Symposium (Secretary: Prof. M. J. Lightboll), a Symposium originally planned to be organized as joint IUTAM/IUGG Symposium, felt strongly that it would be preferable from the viewpoint of the program envisaged to organize this meeting as a pure IUTAM Symposium. This suggestion was unanimously adopted by the General Assembly. From the financial standpoint this implies that the number of participants must be held much smaller than that of a former symposium held in Japan in 1966 and jointly sponsored by IUTAM and IUGG. The Bureau of IUTAM will decide at its next meeting in Karlsruhe in 1969 on the allocation from IUTAM funds for this Symposium. It is hoped that $4,000.— can be granted for this purpose.

The General Assembly decided that the Symposium will be held in Tokyo in September 1971, the members of the Scientific Committee appointed being
II) Symposium recently suggested but not yet considered in a meeting of the General Assembly

Six further proposals recently made for subjects of future IUTAM Symposium were, some time ago, submitted to the members of the General Assembly by circular asking for the order of preference that the members of the General Assembly would wish to see attached to these proposals. The result of this inquiry gave a very clear picture of this order of preference. Whereas three suggestions (Theory of Combustion Processes, Aerodynamics of Flows with Large Velocity Fluctuations, Dynamics of High-Speed Vehicles) received only weak support, strong support was given to the other three suggestions, and they were therefore now submitted to the General Assembly in their order of preference.

(10) Computer Methods in Solid Mechanics

This subject is closely related with, but much broader than that of the Symposium already decided to be held at Liège. Since it has received such high preference, the General Assembly authorized the Bureau to appoint the members of a Study Group in Liège in 1970 to investigate, after the Liège Symposium, the desirability of a future Symposium on this far more general subject.

(11) Unsteady Boundary Layers

This proposal was submitted by the Canadian National Committee. In the meantime this Committee has extended to IUTAM a very generous invitation to organize the Symposium at the Université Laval, Quebec, Canada, from May 23–29, 1971. The Chairman of the Canadian National Committee, Prof. Rémi Quint, has informed the Bureau that the Canadian National Research Council is ready to make a grant of $4,000,—, and that this sum could, if necessary, be used solely for the purposes of IUTAM to carry travel and subsistence costs of participants. The Canadian National Committee has also announced that Prof. E. A. Eichelbrener of Quebec would be ready to act as Chairman of the Scientific Committee for this Symposium and also would be responsible for the local arrangements. This generous offer was much appreciated by the General Assembly. However, a more detailed definition of the scope of the Symposium was felt to be necessary. Therefore, a Study Group was appointed consisting of Prof. E. A. Eichelbrener, Secretary (Canada), Dr. P. Bradshaw (UK), Prof. H. Göttler (Germany), Prof. L. G. Leontjevski (USSR).

This Study Group should report to the Bureau on a planned program and suggest the names of the members of the Scientific Committee. The report of the Study Group should be submitted to the Bureau well ahead of the next meeting in 1969 and not later than 1 July 1969.

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This Study Group should report to the Bureau on a planned program and suggest the names of the members of the Scientific Committee. The report of the Study Group should be submitted to the Bureau well ahead of the next meeting in 1969 and not later than 1 July 1969.
(12) Control and Stability of Ships and Submarines
This proposal was submitted some time ago by the British delegation. The Bureau felt, and the General Assembly agreed with the Bureau, that a more detailed proposal should be submitted to the Bureau by the British delegation well ahead of the next meeting of the Bureau in 1969 and not later than 1 July 1969. The British delegation was also requested to consider if a Symposium on the proposed subject could be co-sponsored by an international professional organization active in the field of this subject.

(13) The General Assembly was informed by the Secretary of IUTAM that, only quite recently, Dr. F. N. Franklin (USA) has called if IUTAM would be ready to co-sponsor a symposium on Planetary Boundary Layers, planned by IUGG to be held at the National Center for Atmospheric Research in Boulder, Colorado, USA, in September of 1970. The General Assembly decided that it would not be possible to consider this proposal for 1970 or even 1971, Dr. Franklin was requested to investigate with IUGG the possibility of organizing this Symposium in 1972.

Item 6 — Report of the President on relations with ICSU
The President of IUTAM, Prof. M. Ray, gave a short report on the relations of our Union with ICSU, mentioning that ICSU wishes to encourage more and more, joint endeavours of its member Unions. The President also discussed the financial situation of ICSU, stating that all member nations should encourage UNESCO to give ICSU stronger financial support.

Item 7 — Report of the Secretary of the Congress Committee of IUTAM
The Secretary of the Committee submitted the following report:

The Congress Committee in its meeting at Stanford on August 25, 1968, approved the two interim reports of the Executive Committee of October 25, 1967 and of June 14, 1968, and it also approved the report of the International Papers Committee for the XIIth Congress, dated July 1968. In its meeting at Delhi in April 1968 the International Papers Committee accepted 282 papers, distributed over 28 countries. The actual list of papers presented at the Congress contains a small number of changes, and this final list will be included in the Proceedings. In the same meeting the Papers Committee allocated grants to participants from 20 countries to a total amount of $ 43,375. Here again, some changes were made in the meantime, and the final distribution of grants will be reported later.

It was further reported that:
Prof. E. Becker (Germany)
Prof. B. A. Boley (USA)
Prof. N. J. Hoff (USA)
Prof. H. Parkus (Austria)

have been nominated as new members of the Congress Committee. The General Assembly unanimously approved the election of these new members. The Executive Committee of the Congress Committee for the period 1968-1972 will consist of the President of IUTAM as President ex officio, Prof. E. Becker as Secretary, and Prof. G. K. Batchelor and Prof. N. J. Hoff as further members.

It was further reported that the Congress Committee has decided that the name of future Congresses, beginning with the XIIIth Congress in 1972, will be "International Congress of Theoretical and Applied Mechanics". (Till now, for historical reasons, the Congresses were named "International Congress of Applied Mechanics")

Item 8 — Cancellation of a membership as adhering organisation of IUTAM
Since the Bureau of IUTAM has not heard from the Turkish Society for Pure and Applied Mathematics, adhering organization of Turkey in the General Assembly of IUTAM, since many years, the General Assembly authorized the Bureau to cancel this membership if no information is received from this Society in response to a last inquiry in the near future.

Item 8a — Decision on applications for membership as adhering organisation of IUTAM

(1) The National Laboratory of Civil Engineering (Laboratório Nacional de Engenharia Civil, LNEC) of Lisbon, Portugal, has applied, through its director Dr. Manuel Rocha, for category 1 membership as adhering national organization representing Portugal in the General Assembly of our Union. After hearing the report of the Secretary of IUTAM on the activities of this Laboratory in the fields of theoretical and applied mechanics, recommending the acceptance of LNEC as adhering Portuguese Organization, the General Assembly unanimously accepted the application of the LNEC as new member of the Union. Following a suggestion already made by the LNEC, the Bureau was requested by the General Assembly to encourage Dr. Rocha to constitute a Portuguese National Committee of Theoretical and Applied Mechanics that would, in the future, represent all important activities in the fields of mechanics in Portugal.

(2) A further application for membership was recently received from the director of the General Department of Scientific Research, Cairo, UAR. Since detailed information, requested by the Secretary of IUTAM and essential for the consideration of applications for membership by the General Assembly, was not received in time, a discussion of this application was postponed till the necessary information is available.
Item 9 — Constitution of the Bureau for the period 1968—1972

The General Assembly unanimously adopted the following proposals for the constitution of the Bureau for the period 1968—1972 becoming effective on 1 November 1968:

President: W. T. Koiter
Vice-President: M. Roy
Treasurer: H. Göttler
Secretary: F. Nicodem
Members: N. J. Hoff, M. J. Lighthill, W. Olszak, L. I. Sedov

The General Assembly also adopted the proposal to re-elect all "elected members" of the General Assembly for the period 1968—1972 and to include as new "elected member" Prof. G. Temple (UK), former President and then Vice-President of IUTAM.

Item 10 — Coordination of international activities in the field of experimental mechanics

Acting upon a suggestion made in the General Assembly at Vienna in June 1966, the Secretary General proposed in a letter to the (European) Permanent Committee for Stress Analysis that an informal exchange of views on some coordination between the European and American organizations sponsoring international congresses on experimental mechanics might be desirable. This action was followed by a meeting in London, attended by Prof. H. Fesler, Mr. C. D. Poensgen and Mr. R. J. Millson for the European Committee, by Prof. D. C. Drucker for the American Society for Experimental Stress Analysis, and by Prof. W. T. Koiter for IUTAM. As a result of this meeting the members of the European Committee were asked by Prof. Fesler to express their opinion with reference to five specific questions. The response was unambiguous on two questions. It was agreed that the Secretary General of IUTAM is the appropriate central figure for communication of conference dates and places, and the principle of association with IUTAM was approved. The possible form of such an association will be discussed at the Fourth (European) International Conference on Stress Analysis in 1970.

In this connection a request of the Executive Committee of ICSU, to the effect that all unions should allow for the possibility of affiliation of related international scientific organizations, is also of interest. The General Assembly adopted the following resolution in response to the request by ICSU:

The General Assembly of IUTAM, meeting at Stanford on August 29, 1968,

1. Taking due note of a recommendation of the Executive Committee of ICSU to the Scientific Unions "that they should consider modifying their rules, if necessary, to provide for the adherence of affiliated international organizations and look favourably upon applications for affiliation when they are appropriate to the Union concerned and likely to help the proper development of science".

2. Concludes that article 1 of the Statutes of IUTAM is sufficiently broad to make no modification of the rules of IUTAM unnecessary in order to implement the recommendations in question, and

3. Conforms that IUTAM is prepared to look favourably upon applications for affiliations when they are appropriate to IUTAM and likely to help the proper development of science.

Item 11 — Date and Place of the next General Assembly

The next General Assembly will be held at Liège (Belgium) on an evening during the week of the IUTAM Symposium on High-Speed Computing of Elastic Structures in September 1970.

Item 12 — Varia

(1) The next meeting of the Bureau will be held at Karlsruhe on an evening during the week of the IUTAM Symposium on Instability of Continuous Systems, at the end of August 1969.

(2) If necessary, the Congress Committee of IUTAM will also meet at Karlsruhe at the end of August 1969.

(3) Prof. L. I. Sedov has kindly accepted to act as Representative of IUTAM at the XIXth International Astronautical Congress in New York, 13—19 October 1968.

(4) Prof. W. Nowacki and Prof. W. Olszak will kindly act as Representatives of IUTAM at the 15th Anniversary Celebration of the Polish Society of Theoretical and Applied Mechanics, in Warsaw on 5 and 6 November 1968.

(5) Prof. W. Olszak was appointed as Observer of IUTAM at the IIed International Congress on the Theory of Machines and Mechanisms, at Warsaw Technical University, 24—27 September 1969. He will report to the Bureau with reference to the question of the desirability of appointing a IUTAM Study Group to consider the possibility of organizing a IUTAM Symposium on Scientific Problems in the Dynamics of High-Speed Mechanisms.

(6) Prof. G. Colomba was delegated as member of IUTAM in the COSPAR Working Group on Moon and Planets and kindly accepted this office.
B. Decision made by the General Assembly in the period after the meeting at Stanford on August 29, 1968 till the end of 1968

The Bulgarian Academy of Sciences applied for membership (category II) as adhering organization of IUTAM, to be represented in the General Assembly of IUTAM by its recently constituted National Committee for Theoretical and Applied Mechanics (President: Prof. G. Brankov, Secretary: Prof. M. Korzarov). By written vote during December 1968, the General Assembly unanimously accepted the Bulgarian Academy of Sciences as new (29th) member of IUTAM, this membership becoming effective on January 1, 1969.

C. Scientific Meetings of IUTAM held in 1968

1. IUTAM Symposium on Thermoelasticity, East Kilbride, Glasgow (UK), June 26 to June 28, 1968.
   Chairman: Prof. B. A. Boley, Dept. of Civil Engineering and Engineering Mechanics, Columbia University, New York, N. Y. (USA).
   72 participants from 15 countries (Austria, Belgium, Canada, Denmark, France, Germany, Iran, Italy, Japan, Netherlands, Poland, Sweden, UK, USA, USSR).

2. IUTAM Symposium on High-Speed Computing in Fluid Dynamics, Monterey, Cal. (USA), August 19 to August 24, 1968.
   Chairman: Dr. F. N. Frenkiel, Applied Mathematics Laboratory, Naval Ship Research and Development Center, Washington, D. C. 20027 (USA).
   162 participants from 13 countries (Australia, Canada, France, Germany, India, Israel, Italy, Japan, Netherlands, Sweden, UK, USA, USSR).

3. 12th International Congress of Applied Mechanics, Stanford, Cal. (USA), August 26 to August 31, 1968.
   Presidents: Prof. N. J. Hoff, Dept. of Aeronautics and Astronautics, Stanford University, Stanford, Cal. (USA).
   1350 participants from 28 countries (Australia, Austria, Belgium, Brazil, Canada, Czechoslovakia, Denmark, France, Germany, Hungary, India, Israel, Italy, Japan, Netherlands, Nigeria, Norway, Poland, Portugal, Romania, Senegal, Sweden, Switzerland, Turkey, UK, USA, USSR, Yugoslavia).

D. Symposia decided for 1969 and later

The following list contains all details now available concerning scientific committees, dates, and places of future IUTAM Symposia and therefore more details than were available at the time the Summary Record of the General Assembly at Stanford (August 29, 1968), reproduced above under A, was written.

The Scientific Committee consists of the following members:
Co-Chairmen:
Prof. S. B. Pikelner (IAU), Sternberg Astronomical Institute, Moscow B-234 (USSR)
Prof. L. I. Sedov (IUTAM), MGU, Zone 1, kw. 84, Moscow B-234 (USSR)

Members representing IAU:
Dr. F. D. Kahn (UK)
Prof. A. B. Severny (USSR)
Dr. R. N. Thomas (USA)
Dr. J.-C. Zahn (France)

Members representing IUTAM:
Prof. H. P. Clauser (USA)
Prof. J. P. Guiraud (France)
Prof. M. J. Lighthill (UK)

5. Second IUTAM Symposium on Creep in Structures, Gothenburg (Sweden), probably August 16 to August 20, 1970.

The Scientific Committee consists of the following members:
Prof. F. E. G. Odqvist, Chairman
The Royal Institute of Technology, Stockholm 70 (Sweden)
Prof. J. F. Beseling (Netherlands)
Prof. N. J. Haff (USA)
Prof. J. Hult (Sweden)
Prof. Y. N. Rabotnow (USSR).


The Scientific Committee consists of the following members:
Prof. B. Fracq of Vendeche, Chairman
Laboratoire d'Aérodynamique, Université de Liege, 75, Rue du Val Benoit, Liege (Belgium)
Prof. E. R. de Araujo and Oliveira (Portugal)
Prof. J. H. Azgiba (Germany)
Prof. J. F. Beseling (Netherlands)
Prof. R. W. Clough (USA)
Prof. A. P. Filin (USSR)
Prof. L. Gallagher (USA)
Prof. O. C. Zirnkevich (UK)

E. Representation of IUTAM in other organizations

In addition to the information given under this title by the Secretary of IUTAM in his report to the General Assembly in Stanford on August 29, 1968, and reproduced above in the Summary Record of that meeting of the General Assembly on page 11, the following further information for the time till the end of 1968 can now be added:


The General Assembly appointed as Chairman of the Scientific Committee:
Prof. W. D. Rains, Dept. of Mechanical Engineering, University of Toronto, Toronto 5, Ontario, Canada.


The Scientific Committee consists of the following members:
Prof. L. I. Sedov, Chairman, MGU, Zone 1, kw. 84, Moscow B-234 (USSR)
Prof. T. Brooke Benjamin (UK)
Prof. E. Naudascher (Germany)
Prof. M. Plesset (USA)
Prof. R. Siepmann (France)
Prof. H. Tulin (USA)
Prof. L. Wijngaarden (Netherlands)

9. IUTAM Symposium on Dynamics of Ionized Gases, Tokyo (Japan), September, 1971.

The Scientific Committee consists of the following members:
Prof. M. J. Lighthill, Chairman, Imperial College, Prince Consort Road, London S.W. 7 (UK)
Prof. L. J. F. Boer (Netherlands)
Prof. G. G. Cherry (USSR)
Prof. W. Fierd (Poland)
Dr. F. G. Frankel (USA)
Prof. P. Germain (France)
Prof. H. Sato (Japan)
Prof. I. Tani (Japan)
2. Prof. W. Nowacki and Prof. W. Olszak acted as Representatives of IUTAM at the 10th Anniversary Celebration of the Polish Society of Theoretical and Applied Mechanics in Warsaw, November 5–6, 1968.

3. The Bureau of IUTAM appointed Prof. H. Göntzel and Prof. W. Olszak as IUTAM observers for the planned International Center of the Mechanical Sciences (CISM), Udine, Italy.

F. Publications of IUTAM in 1968

In 1968 the following publications of IUTAM appeared:


G. Changes of Members of the General Assembly

In addition to the changes reported by the Secretary of IUTAM to the General Assembly at Stanford on August 29, 1968, and included above in the Summary Record of that meeting of the General Assembly, on page 7, the following changes have recently been made:

1. The National Laboratory of Civil Engineering of Lisbon, Portugal (Director: Dr. Manuel Rocha) has been accepted as new (28th) member of IUTAM representing Portugal in the General Assembly (Category I). This membership became effective on January 1, 1968.

2. The National Committee for Theoretical and Applied Mechanics of the Bulgarian Academy of Sciences (President: Prof. G. Brankov, Secretary: Prof. M. Kazanov) has been accepted as new (29th) member of IUTAM representing Bulgaria in the General Assembly (Category II). This membership became effective on January 1, 1969.

3. Prof. Dr. István Sőlyi, Technical University of Miskolc, will act in our General Assembly as new representative of the Hungarian National Committee for IUTAM in the Hungarian Academy of Sciences.

4. Prof. dr. ir. J. F. Besselings resigned as representative of the Section for Mechanics of the Royal Institute of Engineers of the Netherlands. He has been replaced by Prof. ir. C. de Prater.

5. Prof. G. Temple has become elected member of the General Assembly.

H. Next Meeting of the Bureau

The next Meeting of the Bureau of IUTAM will be held at Karlsruhe, Germany, on an evening during the week of the IUTAM Symposium on Instability of Continuum Systems, September 8 to September 12, 1968.

I. Next General Assembly

The next General Assembly of IUTAM will be held at Liège, Belgium, on an evening during the week of the IUTAM Symposium on High-Speed Computing of Elastic Structures in September 1970.
II. REPORT OF THE TREASURER
Summary Statement of Receipts and Payments for the year ended 31st December 1968

<table>
<thead>
<tr>
<th></th>
<th>U.S. Dollars</th>
<th>Pounds Sterling</th>
<th>French Francs</th>
<th>Dutch Guilders</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. UNRESTRICTED FUNDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances, 1st January 68</td>
<td>8,392.49</td>
<td>2,607/1/11</td>
<td>345.23</td>
<td>97,049.20</td>
</tr>
<tr>
<td>Receipts:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscriptions (Schedule I)</td>
<td>25,340.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Interest</td>
<td>3,345.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reimbursement ICSU dues for 1967</td>
<td>341.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currency transfers</td>
<td>1,234.29</td>
<td>2,184/11/11</td>
<td>1,379.78</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>8,237.49</td>
<td>2,626/11/11</td>
<td>347.22</td>
<td>133,026.54</td>
</tr>
<tr>
<td>Payments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing costs IUTAM report for 1967</td>
<td>1,664.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travelling and Subsistence expenses, General Assembly at Stanford</td>
<td>1,687.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travelling and Subsistence expenses 12th International Congress of Applied Mechanics at Stanford</td>
<td>2,371.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travelling and Subsistence expenses Symposium at Monterey</td>
<td>2,000—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses for GAMM meeting at Prague in connection with participation in Stanford Congress by Eastern European participants</td>
<td>25—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisational expenses in support of General Assembly at Stanford</td>
<td>1,020.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICSU dues for 1967</td>
<td>531.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIPS dues for 1967</td>
<td>471.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditing fee for financial report 1967</td>
<td>17.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Charges</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total payments</td>
<td>3,346.34</td>
<td>2,626/11/11</td>
<td>347.22</td>
<td>133,026.54</td>
</tr>
<tr>
<td>Balances, 31st December 1968</td>
<td>8,392.49</td>
<td>2,607/11/11</td>
<td>345.23</td>
<td>97,049.20</td>
</tr>
</tbody>
</table>

| B. RESTRICTED FUNDS     |              |                 |               |                |
| Balances, 1st January 68| 6,035.05     | 2,626/11/11     | 341.10        | 7,545.77       |
| Receipts:              |              |                 |               |                |
| Amount received from ICSU in respect of Unesco grant | 25,184.32  |                 |               |                |
| Totals                 | 6,430.05     | 2,626/11/11     | 341.10        | 17,641.05      |
| Payments:              |              |                 |               |                |
| Symposium at Monterey, California | 1,020—     |                 |               |                |
| Symposium at East Kilbride, Scotland (Schedule II) | 5,000—     |                 |               |                |
| Total payments         | 7,000—        |                 |               |                |
| Balances, 31st December 1968 | 3,346.34     | 2,626/11/11     | 347.22        | 133,026.54     |

SUMMARY OF BALANCES

<table>
<thead>
<tr>
<th></th>
<th>U.S. Dollars</th>
<th>Pounds Sterling</th>
<th>French Francs</th>
<th>Dutch Guilders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted funds</td>
<td>4,395.35</td>
<td>2,626/11/11</td>
<td>345.23</td>
<td>129,125.30</td>
</tr>
<tr>
<td>Restricted funds</td>
<td>341.35</td>
<td>2,626/11/11</td>
<td>347.22</td>
<td>17,641.05</td>
</tr>
<tr>
<td>Balances at Banks, 31st December 1968</td>
<td>3,631.40</td>
<td></td>
<td></td>
<td>142,766.36</td>
</tr>
</tbody>
</table>
III. APPENDICES

A. Statuts de l'Union Internationale de Mécanique Théorique et Appliquée

PREAMBULE

Afin de contribuer plus efficacement au développement de la science de la Mécanique, le Comité International des Congrès de Mécanique Appliquée avait décidé, lors de sa réunion à Paris en septembre 1946, de fonder une organisation permanente portant le nom de "Union Internationale de Mécanique Théorique et Appliquée".

Cette Union a été admise dans le Conseil International des Unions Scientifiques par décision du Comité Exécutif de ce Conseil en 1947.

Dans les réunions tenues à Londres en septembre 1948, il a été décidé que le Comité International continuera, en tant que corps indépendant de l'Union, à organiser, comme par le passé, les Congrès Internationaux de Mécanique Appliquée et que ce Comité aura le Statut d'une organisation adhérente à l'Union.

Lors des réunions de Munich en août-septembre 1964, il a été décidé que le Comité International pour les Congrès de Mécanique Appliquée serait dessous comme un organisme distinct et portant le statut d'organisation adhérente à l'Union, et qu'il serait remplacé par un Comité permanent pour les Congrès Internationaux comme un organisme permanent et intégré dans l'organisation de l'Union sous le nom de « Comité pour les Congrès Internationaux ». ¹

1. L'Union Internationale de Mécanique Théorique et Appliquée a pour buts:

a) De former un lien entre des personnes et des organisations nationales ou internationales s'occupant de recherches scientifiques (théoriques ou expérimentales) dans le domaine de la mécanique ou des sciences connexes.

b) D'organiser les Congrès Internationaux de Mécanique Théorique et Appliquée par l'intermédiaire du Comité permanent des Congrès et d'organiser d'autres réunions internationales sur des sujets du domaine de la mécanique théorique et appliquée.

c) De prendre toutes autres initiatives propres à contribuer au développement scientifique de la mécanique théorique ou appliquée.

II

L'organe actif de l'Union Internationale de Mécanique Théorique et Appliquée est son Assemblée Générale.

L'Assemblée Générale a pouvoir de décision pour toutes les questions concernant l'Union, y compris la modification des statuts. Elle peut déléguer ce pouvoir pour des sujets spécifiés à des organes appropriés.

La composition de l'Assemblée Générale est réglée par l'article IV.

II A

a) L'Assemblée Générale établit un Comité permanent des Congrès qui est responsable pour l'organisation des Congrès internationaux de mécanique théorique et appliquée à intervalles réguliers.

b) Le président de l'Union est aussi président du Comité des Congrès. Les membres du Comité des Congrès sont nommés par l'Assemblée Générale en tant que personnalités scientifiques activement engagées dans la mécanique théorique et appliquée sans être nécessairement membres de l'Assemblée Générale.

c) Le Comité des Congrès nomme un Secrétaire, sans durée définie de fonction.

d) Les règles de fonctionnement du Comité des Congrès doivent être approuvées par l'Assemblée Générale.

III

Des organisations s'occupant d'études scientifiques dans le domaine de la mécanique théorique ou appliquée (ou des unions nationales de telles organisations) peuvent être admises par l'Assemblée Générale comme organisations adhérentes de l'Union Internationale.

Chaque organisation adhérente aura des représentants à l'Assemblée Générale de l'Union et paiera une souscription annuelle à l'Union, d'après les indications de l'article IX.

---

1 Modification approuvée par l'Assemblée Générale du 2 septembre 1964 à Munich et devenue effective à partir du 1 septembre 1964.

VII

Afin de maintenir son activité dans l'intervalle entre les réunions de l'Assemblée Générale, celle-ci nomme un Bureau composé :

d'un président,
du président sortant, vice-président,
d'un secrétaire,
d'un trésorier,
et de quatre autres membres de l'Assemblée Générale.

Les membres du Bureau sont élus pour une période de quatre ans au maximum et sont rééligibles. Les membres nouvellement élus entrent en fonction le 1er novembre qui suit l'Assemblée Générale qui les a élus.

Le Bureau doit se réunir au moins une fois par an. Tout membre du Bureau peut, en prévenant par lettre le secrétaire, se faire remplacer par un autre membre de l'Assemblée Générale, s'il lui est impossible de prendre part à une réunion.

Le rôle du secrétaire est d'assurer les liaisons permanentes pour tout sujet intéressant l'Union, y compris les relations avec les organisations adhérentes ou étrangères à l'Union.

Le siège légal de l'Union est la résidence du secrétaire.

Le Bureau est autorisé à nommer des trésoriers adjoints dans les pays où l'Union a un compte en banque.

Les trésoriers adjoints doivent être membres de l'Assemblée Générale, mais ne sont pas nécessairement membres du bureau.

VIII

Les moyens financiers de l'Union proviennent :

a) des souscriptions annuelles des organisations adhérentes;
b) des dons ou subventions.

L'Union établira chaque année une liste de bienfaiteurs, dans laquelle seront inscrits les noms des personnes ou des institutions qui ont accordé des dons, des legs ou autres subventions à l'Union.

Le Bureau de l'Union établit un budget pour chaque année et administre les finances. Il doit soumettre un rapport financier annuel aux membres de l'Assemblée Générale.

IX

Le nombre de représentants d'une organisation adhérente et le montant de la souscription annuelle à payer par cette organisation seront réglés d'après le barème suivant sur proposition de l'organisation adhérente et après approbation de l'Assemblée Générale de l'Union.

\[\begin{array}{|c|c|c|}
\hline
\text{Catégorie} & \text{Nombre de représentants} & \text{Unité de souscription annuelle} \\
\hline
1 & 1 & 1 \\
2 & 2 & 3 \\
3 & 3 & 5 \\
4 & 4 & 8 \\
5 & 5 & 12 \\
\hline
\end{array}\]

Le montant d'une unité de souscription annuelle sera de $70^{\dagger}$ USA, ou son équivalent en monnaie du pays à la date du paiement.

X

Dans toutes ses décisions, l'Assemblée Générale s'inspirera de la tradition de coopération scientifique libre et internationale qui s'est développée dans les Congrès Internationaux de Mécanique appliquée.

XI

Le présent texte français sera autorisé pour l'interprétation à donner aux statuts.

B. Résolution de l'Assemblée Générale de Piailanza
(27 juillet 1960)

En confirmation des opinions exprimées précédemment à l'Assemblée Générale de septembre 1948 au moment où les présents statuts ont été adoptés :

1. L'Assemblée Générale estime que, dans les pays où il existe plus d'une organisation nationale active dans le champ de la mécanique théorique et appliquée, un comité spécial de coordination doit être formé. En général, il est convenu de reconnaître seulement une organisation adhérente dans chaque pays.

2. L'Assemblée Générale estime que sa composition devra être graduellement modifiée de façon à ce qu'elle comprenne principalement les représentants des organisations adhérentes à l'Union, la catégorie des membres élus devant être réservée pour des cas particuliers et exceptionnels. Dans ce cas, elle donne avis de son intention de réduire le nombre des membres élus lorsque, en 1962, ils seront arrivés au terme de leur mandat.

\[\dagger\] Modification apportée à la suite de la vote de l'Assemblée Générale de Bresoi (Italie), 1er septembre 1962.
C. Règles de fonctionnement du Comité des Congrès de IUTAM (4 septembre 1964)

1. Le Comité des Congrès se réunit au moins une fois lors de chaque Congrès.

2. Le Comité des Congrès peut instaurer un Comité Exécutif chargé d'entreprendre toutes les actions nécessaires de sa part pendant la période qui s'écoule entre deux Congrès successifs, et de lui faire un rapport à sa prochaine réunion. Le Comité Exécutif comprendra le président et le secrétaire du Comité des Congrès et un ou plusieurs membres désignés par le Comité des Congrès.

3. L'organisation effective d'un Congrès est confiée à un Comité local d'Organisation, élu par le pays ou l'organisation qui invite, et ce Comité est également responsable de la publication des Comptes Rendus du Congrès. Le Comité d'Organisation sera son rapport au Comité des Congrès soit au cours du Congrès qu'il organise, soit avant, s'il le juge préférable.

4. Le Comité d'Organisation devra obtenir l'approbation du Comité des Congrès (normalement par l'intermédiaire du Comité Exécutif) pour toutes les affaires qui se rapportent à la politique générale du Comité des Congrès, ou particulier pour celles qui concernent:

4.1 le lieu du Congrès;
4.2 la sélection des communications pour le Congrès;
4.3 le choix des lectures générales pour le Congrès;
4.4 la désignation des présidents de sessions du Congrès.

5. Le Comité d'Organisation percevra, au nom de l'Union Internationale de Mécanique Théorique et Appliquée, de tous les membres du Congrès une contribution supplémentaire ne devant pas dépasser 8 $ pour couvrir les dépenses administratives, en plus de la contribution pour le Congrès lui-même. Les contributions supplémentaires seront reversées à IUTAM immédiatement après le Congrès.

D. Statutes of the International Union of Theoretical and Applied Mechanics

PREAMBLE

In order to be more fully equipped to promote development of the science of mechanics, the International Committee for the Congresses of

Applied Mechanics at its meeting at Paris in September 1946 decided to found a permanent organization, called "The International Union of Theoretical and Applied Mechanics".

This Union has been admitted into the International Council of Scientific Unions by decision of the Executive Committee of this Council in 1947.

At the meetings at London in September 1948 it was decided that the International Committee would continue to organize the Congresses of Applied Mechanics as an independent body as in the past, and that the International Committee would have the status of an adhering organization of the Union.

At the meetings at Munich in August-September 1964 it was decided that the International Committee for the Congresses of Applied Mechanics would be dissolved as an independent body with the status of an adhering organization of the Union, and that it would be replaced by a standing Committee for International Congresses as an integral part of the organization of the Union.1

I

The objects of the International Union of Theoretical and Applied Mechanics are:

a) To form a link between persons and national or international organizations engaged in scientific work (theoretical or experimental) in mechanics or in related sciences;

b) To organize international congresses of theoretical and applied mechanics through a standing Congress Committee, and to organize other international meetings for subjects falling within the field of theoretical and applied mechanics 1;

c) To engage in other activities meant to promote development of mechanics, both theoretical and applied, as a branch of science.

II

The active organ of the International Union of Theoretical and Applied Mechanics is its General Assembly.

The General Assembly has power to decide all questions affecting the Union, including alteration of the statutes. On a specified question it may delegate this power to appropriate bodies.

The composition of the General Assembly is regulated in Article IV.

---

1 Règles approuvées par l'Assemblée Générale du 2 septembre 1964 à Munich et devenues effectives à partir du 4 septembre 1964.

1 Modification approved by the General Assembly of September 3, 1964 in Munich and became effective from September 4, 1964.
II A 1

a) The General Assembly establishes a standing Congress Committee which is responsible for the organization of international congresses of theoretical and applied mechanics at regular intervals.

b) The president of the Union shall also serve as president of the Congress Committee. The members of the Congress Committee are appointed by the General Assembly as scientists active in theoretical and applied mechanics who need not be members of the General Assembly.

c) The Congress Committee appoints a secretary, without stated terms of office.

d) The rules of procedure of the Congress Committee shall be approved by the General Assembly.

III

Organizations occupied in scientific work in theoretical or applied mechanics (or national unions of such organizations) can be admitted by the General Assembly as adhering organizations of the International Union.

Each adhering organization shall have representatives in the General Assembly of the International Union, and pay an annual subscription to the Union in accordance with Article IX.

IV

The General Assembly of the International Union of Theoretical and Applied Mechanics is composed of:

a) Representatives of the organizations adhering to the Union;

b) Members elected by the General Assembly of the Union, who shall be persons actually engaged in scientific work in mechanics or in related sciences;

c) If so decided by the General Assembly, representatives of Committees. 2

The number of elected members of the General Assembly of the same nationality in general should not exceed five. Exceptions can be made only by decision of the General Assembly. The term of each elected member shall be determined by the General Assembly at the time of his election.

1 Addition approved by the General Assembly of September 2, 1964 in Munich and become effective from September 4, 1964.

2 The General Assembly of September 2, 1964 in Munich has decided to add as Member of the General Assembly a representative of the standing Congress Committee of IUTAM (see article II A).

The General Assembly shall provide for adequate representation of countries where important research is carried out in theoretical or applied mechanics, but where a national organization does not yet exist.

V

When voting is necessary every member of the General Assembly shall dispose of one vote. Any member who may be unable to attend a meeting may by a letter to the secretary constitute another member of the General Assembly as his proxy.

For ordinary decisions and for elections a simple majority of the votes brought forward is required. For an alteration of the statutes the majority required is 2/3 of the votes brought forward.

Between meetings of the General Assembly voting may be carried out by correspondence upon proposals made by the Bureau (section VII); in this case decisions will be valid only provided the number of persons taking part in the vote is not less than 2/3 of the total membership of the General Assembly.

VI

Meetings of the General Assembly will take place at times decided by the Bureau or on request of at least 10 members of the General Assembly.

VII

In order to carry out work between the meetings of the General Assembly, the latter appoints a Bureau, consisting of:

A president,
The retiring president, who shall serve as vice-president,
a secretary,
a treasurer,
and four other members of the General Assembly.

The members of the Bureau will be elected for a period of at most 4 years and will be eligible for re-election. Newly elected members of the Bureau enter into office on the date of November 1st, following the General Assembly at which they have been elected.

The Bureau will meet at least every year. A member of the Bureau who is prevented from attending a meeting may by a letter to the secretary designate another member of the General Assembly to replace him.

The function of the secretary will be to act as a permanent center for matters affecting the Union, including relations with adhering or outside organizations.

The legal domicile of the Union shall be the place where the secretary lives.
The Bureau is authorized to appoint assistant-treasurers in those countries where the Union has a bank account.

The assistant-treasurers must be members of the General Assembly but need not to be members of the Bureau.

VIII

The financial means of the Union are formed by:
a) the annual subscriptions of the adhering organizations;
b) gifts and grants.

The Union shall maintain a list of benefactors on which shall be inscribed annually the names of those persons or institutions which have acceded gifts, legacies or other subventions to the Union.

The Bureau of the Union shall draft a budget for each coming year, and shall administer the finances. The Bureau shall submit an annual financial report to the members of the General Assembly.

IX

The number of representatives of an adhering organization and the amount of the annual subscription to be paid by that organization will be regulated according to one of the following categories, as proposed by the adhering organization and after approval of the General Assembly of the Union:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of representatives</th>
<th>Units of annual subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>III</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>IV</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>

The amount of the unit annual subscription will be U. S. $ 70 or its equivalent in local currency at the date of payment.

X

In all its decisions the General Assembly shall be guided by the tradition of free international scientific cooperation which has been developed in the International Congresses for Applied Mechanics.

XI

The French text of the statute (of which the above is a translation) shall be considered to be the authoritative text.

* Modification introduced after the vote of the General Assembly in Brussels (Italy) — September 1st, 1960.

E. Resolution of the General Assembly at Pallanza
(June 27, 1952)

In confirmation of the views already expressed at the General Assembly of September 1948 when the present statutes were framed:

1. The General Assembly expects that in those countries where more than one national organization is active in theoretical and applied mechanics, a national coordinating committee will be formed. In general it is expected to recognize only one adhering body in each country;

2. The General Assembly believes that a gradual transition should be made in its composition, so that ultimately it will consist mainly of representatives of organizations adhering to the Union with the category of elected members reserved for exceptional and unusual cases. To this end it gives notice of its intention to reduce the number of elected members when the terms of the present elected members expire in 1952.

F. Rules of procedure* for the Congress Committee of IUTAM
(September 4, 1964)

1. The Congress Committee meets at least once at every Congress.

2. The Congress Committee may appoint an Executive Committee to take all necessary actions on its behalf in the period between two successive Congresses, and to report to it at its next meeting. The Executive Committee will consist of the president, the secretary and one or more members appointed by the Congress Committee.

3. The actual organisation of a Congress is delegated to a local Organizing Committee, elected by the host-country or host-organization, which is also responsible for publication of its Proceedings. The Organizing Committee will report to the Congress Committee either during or, if it sees fit, before the Congress which it organizes.

4. The Organizing Committee will obtain the approval of the Congress Committee (normally through the Executive Committee) with regard to all matters affecting the general policy of the Congress Committee, in particular with regard to:

4.1 the scope of the Congress;

4.2 the screening of papers for the Congress;

4.3 the selection of general lectures for the Congress;

4.4 the appointment of chairmen of sessions of the Congress.

5. The Organizing Committee will levy a fee not exceeding § 1 on behalf of the International Union of Theoretical and Applied Mechanics, for administrative expenses, from all Congress members, as addition to the fee required for the Congress itself. The additional fees will be paid over to IUTAM immediately after the Congress.

G. Adhering Organizations and Members of the General Assembly (as of December 31, 1968)

a) Adhering Organizations and Representatives:

1. UK (1948)
The Royal Society, 6 Carlton House Terrace, London SW 1
President: Prof. P. M. S. Blackett, C.H.
Executive Secretary: Dr. D. C. Martin, C.B.E., The Royal Society, 6 Carlton House Terrace, London SW 1
Representatives: Prof. G. K. Batchelor, F.R.S., Department of Applied Mathematics and Theoretical Physics, Silver Street, The University of Cambridge, Cambridge
Prof. R. E. D. Bishop, Department of Mechanical Engineering, University College London, Gower Street, London WC 1
Dr. D. K. Ireland, C.B.E., F.R.S., Aeronautical Department, Royal Aircraft Establishment, Farnborough, Hampshire
Prof. G. J. Lightbody, F.R.S., Imperial College, Prince Consort Road, London SW 7

2. Hungary (1948)
Hungarian National Committee for IUTAM of the Hungarian Academy of Sciences, Budapest
President: Prof. Dr. István Silyé, Technical University of Miskolc, Miskolc
Secretary: Prof. Dr. J. Szabo, Budapest, XL, Múzeum rakpart 3
Representative: Prof. Dr. István Silyé

3. France (1949)
Comité National Français de Mécanique, 55, boulevard Malesherbes, Paris VIII
President: Prof. H. Villat, 47, boulevard Auguste-Blanqui, Paris XIII
Secretary-General: Prof. Maurice Roy, 55, boulevard Malesherbes, Paris VIII
Representatives: Prof. Maurice Roy
Prof. Luc Guichard, 14, rue du Lycee, Scarras (92)
Prof. Paul Germain, 5, avenue de Champaulbert, Paris XV
Dr. Robert Legendre, 17, rue Massenet, Paris XVI

4. Czechoslovakia (1949)
The Czechoslovak Committee of Theoretical and Applied Mechanics of the Czechoslovak Academy of Sciences (year of change of organization: 1957), Poliklinika nám. 9, Praha 6
President: Dr. Ing. Jan Jerie, Konorická 27, Praha 6
Representatives: Dr. Ing. Jan Jerie
J. Kozensk, Member of the Academy, Bureau of the President of the Czechoslovak Academy of Sciences, Národní tř. 3, Praha 1

5. Norway (1949)
The National Committee on Theoretical and Applied Mechanics of the Norwegian Academy of Science and Letters, University of Oslo, Blindern, Oslo 3
President: Prof. Enef Palm, University of Oslo, Blindern, Oslo 3
Representatives: Prof. Enef Palm

6. Italy (1949)
Consiglio Nazionale delle Ricerche, Piazza delle Scienze, 7, Roma
President: Prof. Giovanni Polvani
Secretary-General: Dr. Franco Rella
Representatives: Prof. Bruno Fiordi, Via Bonardi 3, Milano N. N.

7. Belgium (1949)
Comité National de Mécanique Théorique et Appliquée de la Classe des Sciences de l’Académie Royale de Belgique, Palais des Académies, Bruxelles
President: Prof. L. Tison, 61 Braamstraat, Gentbrugge
Secretary: Prof. F. Haus, 99 rue du Colonel Chaltin, Bruxelles 18
Representatives: Prof. F. Haus
Prof. P. Bockem, 3, av. des Hérons, Héverlé-Louvain
Prof. P. Van Esse, 23, Avenue de la Forêt, Bruxelles 5

8. USA (1949)
The U.S. National Committee on Theoretical and Applied Mechanics, Division of Physical Sciences, National Research Council, 2101 Constitution Avenue, Washington, D. C., 20418
Chairman: Prof. Daniel C. Drucker, Division of Engineering, Brown University, Providence, Rhode Island, 02912
Vice-Chairman: Prof. G. F. Carrier, 506 Pierce Hall, Harvard University, Cambridge, Mass., 02138
Secretary: O. B. Schier, II, The American Society of Mechanical Engineers, 345 East 47th Street, New York, N. Y., 10017
Representatives: Prof. G. F. Carrier
Prof. Daniel C. Drucker
9. Denmark (1949)
The Academy of Technical Sciences of Denmark (Akademiet for de Tekniske Videnskaber), Rigensgade 11, 1316 Copenhagen K
Secretary: Bjarre Lavesen
Representatives: Prof. Fröhlich Nordicum, Technical University of Denmark, Rigensgade 13, 1316 København K

10. Sweden (1950)
Swedish National Committee for Mechanics, The Royal Institute of Technology, Stockholm 70
President: Prof. Folke K. G. Odqvist, The Royal Institute of Technology, Stockholm 70
Secretary: Dr. Janne Carlsson, Division of Strength of Materials, The Royal Institute of Technology, Stockholm 70
Representatives: Prof. Folke K. G. Odqvist
Prof. S. Berndt, The Royal Institute of Technology, Stockholm 70

11. Turkey (1950)
The Turkish Society for Pure and Applied Mathematics, c/o Dr. Nazim Tarsizoglu, Feri Fakultesi, Istanbul

12. India (1950)
The Indian National Committee for Theoretical and Applied Mechanics (year of change of organization: 1967), National Institute of Sciences of India, Bahadar Shah Zafar Marg, New Delhi
Chairman: Dr. S. Bhagavantam, F. N. I., Ministry of Defence, Government of India, 177 South Block, Central Secretariat, New Delhi 11
Representative: Dr. S. Bhagavantam

13. Switzerland (1950)
Eidgenössische Technische Hochschule, Leenhardstrasse 33, 8006 Zürich
President: Dr. Jakob Burckhardt, Eidgenössische Technische Hochschule, Leenhardstrasse 33, 8006 Zürich
Secretary: Dr. Hans Rudolf Denpler, Leenhardstrasse 33, 8006 Zürich
Representatives: Prof. Dr. Niklaus Rott, Eidgenössische Technische Hochschule, Sonneggstrasse 3, 8006 Zürich
Prof. Dr. Hans Ziegler, Weiberweg 6, 8803 Rüschlikon

14. Germany (1950)
Gesellschaft für Angewandte Mathematik und Mechanik, Universitü Hamburg, Institut für Schiffbau, 2 Hamburg 33, Lümmersrei 90
President: Prof. Dr. K. Wiewandt
Secretary: Prof. Dr. J. Dörr, Institut für Angewandte Mathematik der Universität des Saarlandes, 66 Saarbrücken
Representative: Prof. Dr. E. Becker, Technische Hochschule Darmstadt, 61 Darmstadt
Prof. Dr. H. Görtz, 2 Freiburg i. Br., Hebelstrasse 40
Prof. Dr. E. Metzler, 75 Karlsruhe-Durlach, Geigersbergrasse 12 N.N.

15. Israel (1950)
The Israel Academy of Sciences and Humanities (year of change of the name of the organization: 1963), Jerusalem, P. O. Box 4040
President: Prof. Dr. A. Kazhdansky
Representative: Prof. Dr. M. Reiner, Technion, Israel Institute of Technology, Haifa, P. O. Box 4910

16. Spain (1950)
President: Sr. Rafael Calvo
Representatives: Sr. Rafael Calvo, Presidente del INTA
Sr. A. Vírez-Marín, Director General del INTA

17. Austria (1951)
Die Österreichische Akademie der Wissenschaften, Dr. Ignaz-Seipel-Platz 2, A 1010 Wien
President: Prof. Dr. h. c. moic. Erich Schmid
Secretary-General: Prof. Dr. Herbert Hanger
Representative: Prof. Dr. Heinz Parkus, Technische Hochschule Wien, Karlplatz 13, A 1040 Wien

18. Japan (1951)
The National Committee for Theoretical and Applied Mechanics of the Science Council of Japan, Ueno Park, Tokyo
President: Prof. Itiro Tani, Department of Mechanical Engineering, Nihon University, Kanda-Surugadai, Chiyoda-ku, Tokyo
Representatives: Prof. Itiro Tani
Prof. Isao Inai, Department of Physics, Faculty of Science, University of Tokyo, Hongo, Bunkyo-ku, Tokyo
Prof. Masao Yodzuki, Director, Japan Society for the Promotion of Science, 1-1 Kanda-Hironsabashi, Chiyoda-ku, Tokyo
22. Yugoslavia (1952)
Yugoslav Society of Mechanics (year of change of organization: 1962),
73, Bulevar Revolucije, P. O. Box 895, Belgrade
Representative: Prof. Dr. Ing. Anton Kubeli, Institute of Mechanics,
Lepi poc 13, Ljubljana

23. Netherlands (1952)
Section for Mechanics of the Division of Applied Sciences of the
Royal Institute of Engineers (year of change of organization: 1957),
Technische Hogeschool Twente, Postbus 217, Enschede
President: Prof. dr. ir. P. J. Zandbergen
Secretary: Prof. ir. C. de Pater
Representatives: Prof. ir. C. de Pater
Prof. ir. J. O. Hinee, Rotterdamseweg 143, Delft

21. Finland (1952)
The Finnish National Committee on Mechanics, The Institute of Technology,
Helsinki
President: Prof. S. E. Stenij, The Institute of Technology, Kuokkane-
tie 28, Helsinki
Representative: Prof. S. E. Stenij

22. Poland (1952)
The Polish Academy of Sciences, Palac Kultury i Nauki, Warsaw
President: Prof. Dr. J. Goszczkowski
Secretary-General: Prof. Dr. D. Smoleński
Representatives: Prof. Dr. M. Lucz, Palac Kultury i Nauki, Warsaw;
Prof. Dr. W. Nowadzki, Palac Kultury i Nauki, Warsaw
Prof. Dr. W. Chonik, ul. Swietokrzyska 21, Warsaw

23. USSR (1956)
USSR National Committee on Theoretical and Applied Mechanics,
Leningradskii prospekt 7, Moscow A-40
President: Prof. N. I.Maskhedilvili, Georgian Academy of Sciences,
ul. Dzorjenski 8, Tbilisi
Vice-President: Prof. L. I. Sedov, MGU, Zone U, app. 84, Moscow
B-234
Secretary: Prof. G. K. Mikhailov, Institute of Mechanics of the
USSR Academy of Sciences, Leningradskii prospekt 7, Moscow A-40
Representatives: Prof. N. I. Maskhedilvili
Prof. L. I. Sedov
Prof. A. A. Il’yushchin, Department of Mechanics and Mathematics,
University of Moscow, Moscow B-234
Prof. A. A. Nikolikii, Computing Centre of the USSR Academy of
Sciences, ul. Vavilova 28, Moscow B-333
Prof. V. V. Sokolovskii, Institute of Mechanics of the USSR Academy of
Sciences, Leningradskii prospekt 7, Moscow A-40

24. Romania (1956)
Institut de Mecanique Appliquee de l’Academie de la RPR, Bucarest
Representative: Prof. E. Tarcafoi, Institut de Mécanique Appliquée,
15, rue Const. Mille, Bucarest

25. Argentine (1959)
Physics Department, Faculty of Engineering of the University of
Buenos Aires (Departamento de Fisica, Facultad de Ingeniería de la
Universidad de Buenos Aires), Paseo Colon 850, Buenos Aires
Director: Dr. Felix Ceranski
Representative: Dr. Felix Ceranski

26. Canada (1963)
The National Research Council of Canada, Ottawa 7, Ontario
President: Dr. W. G. Schneider
Secretary: Dr. J. D. Ballister
Representatives: Dr. W. D. Baines, University of Toronto, Toronto 5,
Ontario
Dr. J. Dubuc, Ecole Polytechnique, Montreal 26, Quebec
Dr. F. P. J. Rimrott, University of Toronto, Toronto 5, Ontario
Dr. P. Savic, National Research Council, Ottawa 7, Ontario

27. Australia (1964)
The Australian National Committee for Theoretical and Applied
Mechanics of the Australian Academy of Science, Gordon Street,
Canberra City, Australian Capital Territory
Chairman: Prof. H. S. Green, FAA, Department of Mathematical
Physics, University of Adelaide, Adelaide, S.A.
Secretary: J. Dorell, Australian Academy of Science, Gordon Street,
Canberra City, Australian Capital Territory
Representative: Prof. H. S. Green

28. Portugal (1968)
Laboratório Nacional de Engenharia Civil, Av. do Brasil, Lisboa
Director: Dr. Manuel Roda
Representative: Dr. Manuel Roda

Bulgarian National Committee for Theoretical and Applied Mechan-
ics of the Bulgarian Academy of Sciences, ul. "7 noemvri" 1, Sofia
President: Prof. G. Brankov
Secretary: Prof. M. Kostov
Representatives: Prof. G. Brankov
Prof. B. Dolapchiev, 36 Tsar Krum Str., Sofia
b) Members elected by the General Assembly for the period 1968—1972:
Prof. J. Ackerer, Institut für Aerodynamik, Eidgenössische Technische Hochschule, Sonneggstrasse 3, Zürich 6 (Switzerland)
Prof. G. A. Crocco, Via Alessandro Torlonia 25, Roma (Italy)
Prof. S. Goldstein, The Division of Engineering and Applied Physics, Pierce Hall, Harvard University, Cambridge, Mass., 02138 (USA)
Prof. R. A. Boley, Columbia University, New York, N.Y. 10027 (USA)
Prof. J. M. Burgers, Institute for Fluid Dynamics and Applied Mathematics, University of Maryland, 4622 Knox Road, apt. 7, College Park, Maryland (USA)
Prof. G. A. Crocco, Via Alessandro Torlonia 25, Roma (Italy)
Prof. S. Goldstein, The Division of Engineering and Applied Physics, Pierce Hall, Harvard University, Cambridge, Mass., 02138 (USA)
Prof. Y. H. Ko, University of Pennsylvania, 200 S. 33rd Street, Philadelphia 4, Pennsylvania (USA)
Prof. W. Rubinsonwicz, Hora 74/4, Warszawa (Poland)
Sir Richard V. Southwell, Imperial College, The Old House, Tringpington, Cambridge (UK)
Sir Geoffrey Taylor, Farmfield, Huntington Road, Cambridge (UK)
Prof. G. Temple, Mathematical Institute, 24-29 St. Giles, Oxford (UK)
Prof. S. P. Timoshenko, Division of Engineering Mechanics, Stanford University, Stanford, California (USA)
Prof. Waloddi Weibull, Boekmålløn, Brösarps Station (Sweden)

H. Members of the Congress Committee of IUTAM
Prof. J. Ackerer, Institut für Aerodynamik, Eidgenössische Technische Hochschule, Sonneggstrasse 3, Zürich 6 (Switzerland)
* Prof. G. R. Batchelor, Department of Applied Mathematics and Theoretical Physics, The University of Cambridge, Silver Street, Cambridge (UK)
* Prof. M. H. Crocco, Via Alessandro Torlonia 25, Roma (Italy)
* Prof. S. Goldstein, The Division of Engineering and Applied Physics, Pierce Hall, Harvard University, Cambridge, Mass., 02138 (USA)
* Prof. R. A. Boley, Columbia University, New York, N.Y. 10027 (USA)
* Prof. J. M. Burgers, Institute for Fluid Dynamics and Applied Mathematics, University of Maryland, 4622 Knox Road, apt. 7, College Park, Maryland (USA)
* Prof. A. Caspary, 1, rue Beethoven, Paris XVII (France)
* Prof. G. Colonnetti, Istituto Dinamometrico Italiano, Strada delle Cacce 73, 10135 Torino (Italy) (deceased on March 21, 1968)

* Members of Executive Committee.

The following members of the Bureau of IUTAM have been elected for the period November 1, 1968 — October 31, 1972:

President: Prof. W. T. Koiter, Meekelweg 2, Delft (Netherlands)
Vice-President: Prof. M. Roy, 55, boulevard Malesherbes, Paris VIII (France)
Secretary: Prof. F. Nielsen, Technical University of Denmark, Rigensgade 13, 1516 København K (Denmark)
Treasurer: Prof. H. Görler, Hebelstrasse 45, 78 Freiburg i. Br. (Germany)
J. IUTAM Symposium on Thermoinelasticity

The Symposium was held at the National Engineering Laboratory in East Kilbride (Glasgow), Scotland, from June 25 to 28, 1968. The Scientific Committee was composed of the following members:

Prof. B. A. Boley, Chairman (USA)
Prof. F. Bucken (Belgium)
Prof. R. G. Odqvist (Sweden)
Prof. W. Olznak (Poland)
Prof. H. Parkus (Austria)
Dr. D. G. Sopwith (UK)

The Local Organizing Committee was directed by Dr. Sopwith with Mr. R. Brodie as Secretary, and deserves praise for excellent arrangements and hospitality.

The proposal for this Symposium originated in 1964, at which time a study group, headed by Professor Odqvist, was formed; upon its recommendations, the Scientific Committee listed above and the site of the Symposium were chosen.

The principal aim of the Symposium was to present a comprehensive view of the behavior of solids and structures at high temperature under any type of inelastic regime. It soon became apparent that this was a very wide field, since it would embrace questions ranging from those of basic thermodynamics to those of engineering analysis and design. Accordingly, an effort was made to have all aspects of the field represented in the program; this fulfilled the secondary aim of the Symposium, namely that of bringing together persons with different points of view, and of providing them with a forum for open discussion. The lively discussions which followed all papers testify to the fact that this aim was indeed accomplished.

The papers presented dealt with the effect of elevated temperature on the following principal topics: fatigue; fracture; the formulation of constitutive relations; thermomechanical coupling; stress analysis; experimental determination of material behavior. The papers themselves as well as the discussions indicated clearly that all of these topics must be considered at the present time as open, and that research is being vigorously pursued in all of them. The present Symposium thus represents an instantaneous picture of the field, and it would probably be desirable to hold another Symposium on the same subject at a distance of several years. Some discussion of high-temperature material behavior from the standpoint of lattice-type theory would probably be usefully included at that time.

18 papers were presented. Two additional papers had been scheduled for presentation, as follows:

G. I. Barenblatt, V. M. Entov, and A. E. Segalov, “Thermal Mechanism of Cold-Drawing”

S. A. Ambartsumyan (USSR), “Equations of the theory of thermal stresses in double-modulus materials”

Neither of these authors were able to present at the Symposium, but manuscripts of their papers had been previously submitted, and will therefore be included in the volume of Proceedings of the Symposium. The Scientific Committee also deeply regrets that one of its members, Professor Bucken, was unable to attend because of illness.

Arrangements have been made for the publication of the Proceedings by Springer-Verlag of Vienna.

The attendance of the Symposium comprised 72 persons, including 24 authors and co-authors. The program and the delegates represented 15 countries.

This report concludes with a summary of the program, including a list of all papers presented at the Symposium.

Summary of Program

June 25:
Tour of National Engineering Laboratories
Informal Cocktail Party

June 26:
Welcoming address by Mr. F. D. Pressey, Director of NEL
First Technical Session: Dr. D. G. Sopwith, Chairman
1. W. Olznak and P. Perzyna (Poland): “Thermal effects in viscoplasticity”.
2. H. Parkus and J. L. Zeman (Austria): “Some stochastic problems of thermo-viscoelasticity”.
3. T. Onat (USA): “On the determination of the number and nature of state variables from phenomenological experiments”.
Second Technical Session: Prof. J. E. Besseling, Chairman
1. F. K. G. Odqvist and N. G. Olsbøn (Sweden): "Thermal fatigue and thermal shock investigations".
2. A. I. Sneth, D. Murray and R. H. King (Great Britain): "An applied mechanics approach to strain concentration effects at elevated temperatures".
4. R. Maxet (France): "Sur la normalité de la fonction de flasque lors d'essai de traction d'un doubl à 200 °C."

June 27:
Third Technical Session: Prof. F. K. G. Odqvist, Chairman
5. E. A. Schapery (USA): "On the application of a thermodynamic constitutive equation to various non-linear materials".
7. M. J. Crochet and P. M. Naghdi (Belgium and USA): "On a class of material with fading memory".

Fourth Technical Session: Prof. H. Parker, Chairman
8. J. D. Achenbach and G. Hermann (USA): "Propagation of second-order thermo-mechanical disturbances in viscoelastic solids".
9. J. A. H. Hall (Sweden): "Cyclic thermal loading in viscoelastic pressure vessels".
10. W. Johnson and R. Slater (Great Britain): "The dynamic blanking, forging and indenting of hot metals".
11. A. M. Freudenthal (USA): "Creep acceleration in some metals under rapidly increasing temperature".

Evening: Banquet
June 28:
Fifth Technical Session: Prof. B. A. Beley, Chairman
12. A. Phillips (USA): "Yield surfaces of pure aluminium at elevated temperatures".
13. T. R. Tauber (USA): "Heat generation in viscoelastic solids with emphasis on experimental results".
14. P. Théorion and R. Chauvet (France): "Influence de la température sur les réactions viscoélastiques de veinesaims de casuchous susceptibles de cristalliser au cours d'essai de traction monotonale".
15. S. Takeu and R. Ohsaka (Japan): "Some problems on creep fracture under combined stress system".

B. A. Beley (Chairman)
The number of participants and observers who attended the Symposium was 162 and included 20 members of the faculty of the Naval Postgraduate School, 88 other USA scientists, and 54 scientists from twelve other countries.

The Proceedings of the Symposium are scheduled for publication as a Supplement to The Physics of Fluids and will also be available as a separate bound volume. In preparing papers for the Proceedings, authors were requested to present their results in a form suitable for publication in a scientific journal. In the event that the paper presented at the Symposium overlaps to a large extent with previous publications or with papers scheduled for publication, an abstract of the paper is to be published in the Proceedings with appropriate reference to the published papers.

The American Institute of Physics was most helpful in obtaining financial assistance for the Symposium from the National Science Foundation, and the U.S. Government. These funds, together with those provided by the International Union of Theoretical and Applied Mechanics, contributed in covering the expenses of arranging the Symposium.

Scientific Program

August 19, Monday morning
Chairman: F. N. Frenkiel

The Importance of Boundary Conditions in the Numerical Treatment of Hyperbolic Equations, Gino Moretti (USA)

Practical Investigation of Convective Difference Approximations of Reduced Dispersion, J. E. Fromm (USA)

August 19, Monday afternoon
Chairman: M. Van Dijke

Steady Two-Dimensional Viscous Flow of an Incompressible Fluid Past a Circular Cylinder, Hideo Takami (Japan) and Herbert B. Keller (USA)

Numerical Solution of Unsteady Viscous Incompressible Fluid Flow Past a Circular Cylinder, P. C. Jain and Sankara Rao (India)

Viscous, Incompressible Flow Past a Circular Cylinder at Moderate Reynolds Numbers, Robert Leigh Underwood (USA)

Time-Dependent Viscous Flow over a Circular Cylinder, Albin A. Sarpkaya (USA)

Analytical Study of Separated Flow about Circular Cylinders, Turgut Sarpkaya (USA)

Numerical Integration of the Navier-Stokes Equations for Steady Two-Dimensional Flows, S. C. R. Dennis and Gao-Zu Chang (Canada)

August 20, Tuesday morning
Chairman: T. R. F. Newmiler

Numerical Solution of the Incompressible Time-Dependent Viscous Flow Past a Thin Oblique Spheroid, Yoriyuki Kikusui, Roy D. Doughty (USA)

Time-Dependent Viscous Incompressible Flow Past a Finite Flat Plate, Yih-Ho Pao and B. J. Doughty (USA)

Steady Viscous Flow Within a Circular Boundary, Kunio Kawamura and Isao Inui (Japan)

Numerical Studies of Viscous, Incompressible, Steady Flow for Large Reynolds Number, Donald Green and David H. Schultz (USA)

Velocity Profiles in the Entry Region of a Straight Channel, J. Gillis (Israel)

Numerical Study on the Flow of a Viscous Fluid in a Curved Channel, M. Kawaguti (Japan)

Numerical Solutions of Two-Dimensional Stall in Fluid Diffusers, Jacob E. Fromm (USA)

August 20, Tuesday afternoon
Chairman: G. K. Bandelhor

Results of Parallel-Flow Stability Calculations Obtained by Time-Sharing Computations, M. Landahl (Sweden)

Computing Problems in Nonlinear Hydrodynamic Stability, W. C. DiPrima and E. H. Rogers (USA)

Nonstationary Motions of Incompressible Fluids with Free Surface, L. V. Ovadnjanov (USSR)

Evaluation of Fluid Dynamics Approximations using a Numerical Method, Barr J. Mul (USA)

August 21, Wednesday morning
Chairman: J. Tani

Numerical Study of Heat Transport by Internal Gravity Waves above an Unstable Layer, J. W. Deardorff (USA)

Numerical Model of Wind-Driven Circulation of the World's Oceans, T. W. Seg (Australia)

Numerical Study of the Collapse of a Perturbation in an Infinite Density Stratiﬁed Ocean, W. Roy Wenzel (USA)

Instability of the Ekman Spiral Boundary-Layer Flow in the Presence of Stable and Unstable Stratification, Alan J. Faller and Robert Kayler (USA)

Inertial Motion of Rectilinear Geostrophic Vortices, George K. Morikawa and Eva V. Swenson (USA)

Numerical Experiments with Thermohaline Convection, J. W. Elder (UK)
August 21, Wednesday afternoon

Chairman: J. Kampe de Féré

Computer Studies of Time-Dependent Turbulent Flows, C. W. Hirt (USA)
Numerical Experiments with a Difference Model for the Navier-Stokes Equations (Turbulence Model), W. Schönauer (Germany)
Computation of the Energy Spectrum in Homogeneous Two-Dimensional Turbulence, G. K. Batchelor (UK)
Correlation Measurements Using Digital Fourier Analysis, C. W. Van Atta and W. Y. Chen (USA)

August 22, Thursday morning

Chairman: J. M. Burgers

Diffusion Approximation to Spectral Transfer in Homogeneous Turbulence, C. E. Leith (USA)
Numerical Simulation of Two-Dimensional Turbulence, D. K. Lilly (USA)
Nonlinear Wave Expansion for Turbulence in the Burgers Model Fluid, T. Tatsumi (Japan)
Numerical Experiments with Three-Dimensional Turbulence, Steven A. Orszag (USA)

Study of the Accuracy of the Numerical Integration of Navier-Stokes Equations, Sin-I Chang (USA)

Spiral Vortex at an Ogive Profile in Translational Motion, W. Blondermann (Germany)

Treatment of the Prager Problem of Potential Theory by the Integral Equation Method, R. Kress (Germany)

August 22, Thursday afternoon

Chairman: H. Polachek

Multi-Access Computing in an Academic Environment, D. G. Williams (USA)
Hybrid Computer Techniques in the Laboratory and Classroom, J. W. Eldor (UK)

August 23, Friday morning

Chairman: G. G. Chernyi

Numerical Investigation of an Axisymmetric Flow Around Long Bodies, V. V. Rusanov (USSR)
Computer Simulation of Multi-Cellular Natural Convection Flow in a Vertical Cavity, F. Landis (USA)

Finite Difference Method for Free Boundary Problems of Hydrodynamics, P. Garabedian and E. Bloch (USA)
A Curious Boundary Layer in Hypersonic Flow, K. Stewartson (UK)
First Differential Approximation Method and Approximate Viscosity of Difference Schemes, N. N. Yanenko and Y. I. Shokin (USSR)

On a Criterion for Filtering Parasite Solutions in a Numerical Computation, R. Kh. Zeytounian (France)
Continuous Pseudo-Shocks in Supersonic Inviscid Flow, Paul Gordon and Sinclair M. Scala (USA)

August 23, Friday afternoon

Chairman: I. Tani

Numerical Study of Two-Dimensional Convective Motion in a Flow Between Horizontal Flat Plates, Yoshimitsu Ogura (Japan)

Natural Convection Between Concentric Vertical Cylinders, G. de Vahl Davis and R. W. Thomas (Australia)
Time Dependence of Thermal Convection in a Bounded Rotating System, Charles Qiao (Canada)
Three-Dimensional Study of Flow Between Concentric Rotating Cylinders, Kenneth A. Meyer (USA)

August 24, Saturday morning

Chairman: H. Schlichting

Singularities at Boundary Layer Separation, K. Stewartson (UK)
Viscous Mixing in Boundary Layer Approximation, P. Koryakov (USSR)
Examination of the Stability of Disturbed Boundary-Layer-Flow by a Numerical Method, S. Loer (Germany)

Solutions of Laminar Boundary Layer Equations Involving Separations, N. Hayami (USA), K. Isoyue (Japan), and H. Tsuji (Japan)

Series Developments and Finite-Difference Calculations in the Laminar Boundary Layer, N. Fröstling (Sweden)

Structure of Steady Closed Streamline Flows within Boundary Layer, L. G. Leal and Andrew Arzico (USA)

François N. Fenklid (Chairman)
1. Publications of the Union

a) Annual Reports.

Report 1948
Report 1949
Report 1950
Report 1951
Report 1952
Report 1953
Report 1954
Report 1955
Report 1956
Report 1957
Report 1958
Report 1959
Report 1960
Report 1961
Report 1962
Report 1963
Report 1964
Report 1965
Report 1966
Report 1967
Report 1968

no more available

available at the Secretariat

b) Publications on Symposia, etc.

1. Problems of Conical Aerodynamics. Proceedings of the Symposium on the Motion of Gasous Masses of Conical Dimensions held at Paris, France, August 16—19, 1949, organized by IUTAM and IAU. Published by: Central Air Documents Office, Army-Navy-Air-Force, UB Building, Dayton 2, Ohio, USA. Copies can be obtained from the Secretary, U.S. National Committee on Theoretical and Applied Mechanics, Room 1101, 29 West 39th Street, New York 18, N. Y., USA, and from the secretariat of the Internationale Astronomische Union (address: University Observatory, Øster Voldgade 3, Copenhagen, Denmark).


3. Colloquium on Plastic Flow and Deformation within the Earth, Hershey, Pennsylvania, USA, September 12—14, 1950, organized by IUTAM and IUGG.

Published by the American Geophysical Union in the "Transactions American Geophysical Union", vol. 32, n° 4, pp. 497—543, 1953. A few copies can be obtained from the Secretary, American Geophysical Union, 1532, P. Street, N. W., Washington, D. C. (USA).


5. Colloque Massau, tenu à Bruxelles, Belgique, les 25—29 avril 1952, organized by the Comité Massau, avec le concours de l'IUTAM. Association des Ingénieurs de Gendarmerie, rue de la Victoire, Bruxelles.


7. Colloquium on Photoelasticity and Photoplasticity (Bruxelles, Belgium, 29—31 July 1954). Published by Impriérice Dioncor, Chaussée de Boesnel, 602—602a, Etterbeek-Bruxelles (Belgique).

8. Colloquium on Fatigue (Stockholm, Sweden, 25—27 May 1955), organized by IUTAM. Published by Springer-Verlag, Heidelberger Platz 3, Berlin-Westend, West Berlin (Germany), 1956.

9. Colloquium on Deformation and Flow of Solids (Madrid, Spain, 26—30 September 1955), organized by IUTAM. Published by Springer-Verlag, Heidelberger Platz 3, Berlin-Westend, West Berlin (Germany), 1956.

10. Third Symposium on Conical Gas Dynamics (Cambridge, Massachusetts, USA, 24—29 June 1957, in cooperation with IUGG), Published by Reviews of Modern Physics, American Institute of Physics, 355 East 4th Street, New York 17, N. Y. (USA), 1958.


15. Symposium on Non-Homogeneity in Elasticity and Plasticity (Warsaw, Poland, 2—9 September 1958), organized by IUTAM. Published by Pergamon Press, Ltd, 4 & 5 Fitzroy Square, London W 1 (UK), 1959.


22. Symposium on Non-Homogeneity in Elasticity and Plasticity (Warsaw, Poland, 2—9 September 1958), organized by IUTAM. Published by Pergamon Press, Ltd, 4 & 5 Fitzroy Square, London W 1 (UK), 1959.


39. IUTAM Symposium on High-Speed Compressing in Fluid Dynamics (Monterey, Cal., USA, 18-24 August, 1968). The Proceedings, edited by F. N. Frenkiel, will be published as supplement of the Journal "The Physics of Fluids".


Until September 4, 1964 the organization of the International Congress for Applied Mechanics was supervised by the "International Committee for the Congresses of Applied Mechanics" and for each Congress separately entrusted to a local Organizing Committee undertaking also the publication of the Proceedings. Consequently, there is no central point from which Proceedings can be ordered, and for each volume, application must be made to the publishers who took care of that particular volume.

Since September 4, 1964 the same task will be fulfilled by the Standing Congress Committee of IUTAM, and local Organizing Committees to be established.

The titles of the volumes and the names of the publishing firms are given below.


Copies can be obtained on application from the Secretary of the Congress Committee, Prof. W. T. Koiter, Mekelweg 2, Delft (Netherlands).

8th Congress, Istanbul (Turkey), 20—28 August 1952. Proceedings published by the Organizing Committee (Vol. I, Vol. II). Faculty of Sciences, University of Istanbul, P. O. Box 243, Istanbul (Turkey), 1952.

Copies can be obtained on application from the Secretary of the Congress Committee, Prof. W. T. Koiter, Mekelweg 2, Delft (Netherlands).


O. Donations in 1968

At the 3rd General Assembly of IUTAM it has been decided to publish every year a list of persons and institutions who rendered support to IUTAM during the course of the past year. The Bureau is pleased to publish the following list for the year 1968:

1. The German Research Association provided generous financial support to defray all expenses of the office of the Secretary of IUTAM in Freiburg i. Br.

2. The National Engineering Laboratory, East Kilbride, generously provided administrative services without charge for the IUTAM Symposium on Thermoinelasticity (East Kilbride, Glasgow, June 25—28, 1968).

3. The American Institute of Physics was most helpful in obtaining financial assistance for the IUTAM Symposium on High-Speed Computing in Fluid Dynamics (Monterey, California, August 19—24, 1968). This financial support was generously rendered by the National Science Foundation and by the U.S. Government.

4. Most generous support for the organization of the 12th International Congress of Applied Mechanics (Stanford, California, August 26—31, 1968) was received from Stanford University, the U. S. Government, the National Science Foundation, the U. S. National Committee on Theoretical and Applied Mechanics, and from many universities, research establishments, industrial corporations and other non-governmental organizations in the United States.