

PROCÈS-VERBAUX DES SÉANCES DU COMITÉ EXÉCUTIF

Bâtiment des Conférences de l'UNESCO, salle II.

PREMIÈRE SÉANCE: lundi 17 juillet 1961, à 10 h 30.

Le professeur A.W. SKEMPTON, F.R.S., Président de la Société Internationale, assure la présidence de la séance.

LE PRÉSIDENT : Gentlemen, at the outset I wish to thank the Norwegian Geotechnical Society of our International Society for making this hammer, or gavel as it is called. This is made out of wood taken from piles driven in the eleventh century for a church in Norway. It is very beautifully designed and it has been presented to the reigning President of the Society. I think we should thank them very much for this gift.

Before we start our agenda it would be helpful if each member of the Executive Committee in turn would stand up and give his name and country and then we will get to know each other, because there are several members here whom not all of us know.

Appel des Membres du Comité.

Vice-Presidents:

Africa : J.E.B. JENNINGS.
Asia : K.L. RAO.
Australasia : G.D. AITCHISON.
Europe : A. MAYER.
North America : R.F. LEGGET.
South America : A.J.L. BOLOGNESI.

Members:

Argentina : O. MORETTO.
Australia : D.H. TROLLOPE.
Austria : O.K. FRÖHLICH.
Belgium : J. VERDEYEN.
Brazil : O. GRILLO.
Bulgaria : G. STEFANOV.
Canada : DAVID TOWNSEND.
Colombia : G. URIBE.
Czechoslovakia : A. MYSLIVEC.
Denmark : J. BRINCH HANSEN.
Finland : K.V. HELENELUND.
France : J. KÉRISEL.
Germany : H.W. KÖENIG.
Hungary : A. KÉZDI.
India : K.L. RAO.
Ireland : V.D. HARTY.
Israel : J.G. ZEITLEN.
Italy : F. PENTA.
Japan : T. MOGAMI.
Yugoslavia : D. KRSMANOVIC.
Mexico : L. ZEEVAERT.
Netherlands : C. VAN DER VEEN.
New Zealand : P.W. TAYLOR.
Norway : O.S. HOLM.
Poland : R. PIETKOWSKI.
Portugal : M. ROCHA.
Southern Rhodesia : V.L. GRANGER.
South Africa : B.A. KANTEY.
Spain : J.M. VALDES.
Sweden : J. OSTERMAN.

Switzerland : D. BONNARD.

Turkey : A.H. PEYNIRCIOGLU.

United Kingdom : J.K.T.L. NASH.

United States of America : Thomas LEPS.

Union of Socialist Soviet Republics : N.A. TSITOVITCH.

China and Egypt were not represented.

LE PRÉSIDENT : I think we all understand that, apart from Vice-Presidents, only one member from each country may vote.

Point I — Rapport du Président sur l'activité générale de la Société Internationale

The first item on the agenda is the report by myself on the general activities of the Society since our last Conference, which, as you will all remember, was held in London in 1957. Since then four regional conferences have been held : one in 1958 in Belgium, on earth pressure, and three in 1960, one in India which was a general conference covering all aspects of soil mechanics and the first Asiatic regional conference, a conference was held in Great Britain and in Australia the third of the Australia-New Zealand conferences on soil mechanics. These were all successful, and I have no doubt whatsoever that more of these regional conferences will be held in the future. They serve, I think, two functions. In the case of India, for example, they bring together people in a particular region — in this case a very wide region — whilst the conferences in Belgium and Great Britain serve a second function — they focus attention on particular problems.

Since our last meeting of this Executive Committee there are six new representatives — the U.S.S.R., Mexico, Czechoslovakia, Bulgaria, Hungary and New Zealand — and we would like to welcome their representatives as members of the Executive Committee.

A new feature, since the London Conference, has been the publication of lists of members, which appeared in 1958 and 1960. We believe that these are very nearly complete and very nearly accurate. They have been very well received. They serve a useful purpose and, unless we have any comments to the contrary, they will continue to be circulated from time to time — we hope every two years. The accuracy of these lists, of course, depends entirely on the co-operation of individual people in sending in, through the national societies, their names and addresses : if anybody's name is not there it is his own fault, not the fault of the Secretary.

Speaking of the Secretary, the Secretariat, as you must know, has been at the Institution of Civil Engineers in London for the past four years, and although this is not the time to make any formal vote of thanks to the Secretary I might perhaps say, at least informally, that the Secretariat has

worked with extreme efficiency; and I am glad to say that if the succeeding President wishes, the Institution of Civil Engineering is prepared to continue the secretariat work. This, of course, will only be decided when the new President is named.

Point 2 — Rapport du Secrétaire sur la composition de la Société

The Secretary will report on membership.

M. A. BANISTER, Secrétaire de la Société Internationale : Since our last Conference four countries have been admitted to membership, i.e. Czechoslovakia, Bulgaria, Hungary and New Zealand. An application from Venezuela is outstanding. The application with the details of the Venezuelan Society has been circulated by post and we have had a certain number of votes received.

Taking the subscriptions as a basis of assessing the number of members there are now 4,700 individual members of the Society throughout the world. This represents an increase of 2,175 over 1957, the number reported to the Fourth Conference.

You, Mr President, have referred to the list of members, and members of the Committee may like to know that in 1958 4,200 copies were circulated, which was sufficient, we hope, for everybody in all the member societies to receive a copy, and in 1960 4,900 were circulated.

I think, Sir, that is all I have on this particular item, unless any questions arise.

LE PRÉSIDENT : In the first place, I would like to know the position regarding Venezuela.

LE SECRÉTAIRE : With Venezuela, 17 votes have been received in favour of the election of Venezuela and none against.

LE PRÉSIDENT : In that case I would like to move that Venezuela be elected a member country of the International Society : is that agreed ?

(Proposition adoptée.)

M. LOPEZ (Venezuela) : There is a representative of Venezuela here, and I would like to ask what is the position regarding the election of Venezuela.

LE SECRÉTAIRE : The position is that as soon as a national society is elected by you I notify them and request a subscription. As soon as they have paid their subscription they are members.

LE PRÉSIDENT : Consequently, if Mr Lopez is willing to pay the subscription he can sit in.

M. A. MAYER (France) : Il serait peut-être possible de faire une exception, étant donné que le Congrès est en cours, si le représentant du Vénézuéla nous donne l'assurance qu'il est disposé à payer. Je ne vois pas pourquoi, vraiment, on attendrait quatre ans pour l'introduire dans le Comité Exécutif.

LE PRÉSIDENT : I think we could, as we say in English, turn a blind eye to this and admit the member for Venezuela at our next meeting. Is that agreed ?

M. RAO (Inde) : I second that.

LE PRÉSIDENT : *It is agreed.*

Point 3 — Rapport financier

LE SECRÉTAIRE : Mr President, the Income and Expenditure Account has been professionally audited each year and it is satisfactory to report that no national society is

in arrears, and as Secretary I would like to thank all national societies for paying so promptly; it is a great help. The subscription rate has throughout the four years been \$ 15 plus 25 cents per member.

The following is a brief statement of the accounts.

Receipts	£	s.	d.	£	s.	d.
Brought forward.				1 435.	17.	2.
Subscriptions.				2 289.	1.	1.
<i>Other receipts :</i>						
U.A.T.I. Fourth Conference	214.	5.	9.			
U.A.T.I. Brussels Conference	90.	4.	2.			
U.A.T.I. Asian Conference	250.	0.	0.			
U.A.T.I. Geotechnical Lit. Cte	143.	0.	0.			
U.A.T.I. Fifth Conference	714.	6.	0.			
Sales of List of Members	10.	10.	0.			
				<u>1 422.</u>	<u>5.</u>	<u>11.</u>
				<u>5 147.</u>	<u>5.</u>	<u>2.</u>
Payments						
Fourth Conference	214.	5.	9.			
Brussels Conference	90.	4.	2.			
Asian Conference	250.	0.	0.			
Geotechnical Literature Cte	143.	0.	0.			
Fifth Conference	714.	6.	0.			
Geotechnical Literature Cte meeting expenses	85.	5.	0.			
Nomenclature Cte meeting expenses	36.	0.	0.			
U.A.T.I. meeting expenses	33.	8.	0.			
Executive Cte meeting expenses	152.	16.	5.			
Postage	380.	4.	9.			
Audit	26.	5.	0.			
Printing	1 813.	11.	8.			
U.A.T.I. subscription	146.	18.	11.			
Cheque book	8.	4.	0.			
Sundries	15.	10.	3.			
				<u>4 102.</u>	<u>4.</u>	<u>3.</u>
Balance in hand				<u>£ 1 045.</u>	<u>0.</u>	<u>11.</u>

A balance of \$ 1 404.89 in a Dollar Account at the Harvard Trust Company has not been drawn upon.

LE PRÉSIDENT : Thank you very much. I would like to suggest that we might consider consolidating our balance instead of holding it, as at the moment, partly in pounds and partly in dollars. We might hold all this in one account. The reason for the dollar account goes back to the days of currency control, when it was useful for us to have dollars as dollars. I do not think that this need now exists, and perhaps we might, in order to simplify accounting, consolidate into one account. Would this be approved ?

(Vote à mains levées.)

LE PRÉSIDENT : *It is agreed.*

So the position, in brief, is that we have a balance of approximately £ 1,400. I think the Secretary is of the opinion that this is sufficient to carry us through to the next Conference quite safely.

LE SECRÉTAIRE : Yes. I am sure that is the case, because we hope our membership will increase, of course, and that will bring in more revenue; but it will mean more lists of members. However I think they will just about balance out, and I have suggested to the President that really in an organisation such as this it is not desirable to build up a large balance. We should really run on current account.

LE PRÉSIDENT : May I take it that the statement of the financial position is acceptable ?

(Proposition adoptée.)

Point 4 — Rapport du Secrétaire sur les rapports de la Société avec P.U.A.T.I. (1)

LE SECRÉTAIRE : This is an organisation which is under the UNESCO and its primary function is to administer subventions which UNESCO places at its disposal for the benefit of international engineering organisations such as this one.

Its income is very limited and it has therefore only a small sum, relatively, to distribute, but we have been members of it since its inception and it has been very useful to us.

In 1960, after a period of one year off the Executive Committee of U.A.T.I. under its rules for rotation, the Society was elected for a further period of six years as a member of the Committee of U.A.T.I., and that, I think, is a reflection of the standing of this Society in the opinion of U.A.T.I. and UNESCO.

The representative on the Council is not named. Under the rules of this Society it was decided at the last Conference in London that the representative on the Council of the U.A.T.I. should be the Secretary, on the nomination of the President. In fact during the last four years, of course, the French national Society has been particularly interested in any subventions coming from U.A.T.I. General Caminade has been very kind, since he is living in Paris, to represent the President at meetings of the U.A.T.I.

The annual subscription we pay the U.A.T.I. is variable, not fixed : they do it on the basis of current needs, and in 1958 it was \$ 160, in 1959 \$ 80, in 1960 \$ 50 and in 1961 \$ 120. In exchange for that we have had subventions from U.A.T.I. as shown in the statement of accounts.

I do think, Sir, that while the U.A.T.I. objectives are limited, apart from the financial side, to trying to see that conferences in different parts of the world do not clash as regards dates membership of U.A.T.I. is most valuable to the Society.

LE PRÉSIDENT : I find that, speaking generally, we receive ten times as much from U.A.T.I. as we pay in subscriptions. I should have thought the use of the words " a good investment " a mild description for this return.

M. ZEITLEN (Israel) : May I ask whether there are procedures established so that national or regional conferences may benefit from this connection with UNESCO ?

LE SECRÉTAIRE : The procedure for subvention is that annually I write a letter (it is about October) to every national society saying " Have you anything on for which you want a subvention ? If so, please give full details ", and that is the only way I hear of them.

LE PRÉSIDENT : Does that satisfy Mr Zeitlen ?

M. ZEITLEN : Fine, sir, thank you.

Point 5 — Rapport du sous-comité chargé de la classification de la littérature géotechnique

Point 6 — Rapport du sous-comité chargé des notations et des symboles employés en mécanique des sols

Point 7 — Rapport du sous-comité chargé des méthodes d'essais de pénétration statiques et dynamiques

LE PRÉSIDENT : If you look at the agenda you will see items 5, 6 and 7 concern reports by three sub-committees. These are the three sub-committees set up by the Executive Committee in London four years ago. We are in a position of some difficulty regarding these sub-committee reports.

The first, the Sub-Committee on Geotechnical Literature,

has already presented a report which has been circulated and normally it is our practice now to discuss this to see whether we accept it or not. On the other hand, two minutes before this meeting started I was informed that the sub-committee wishes to meet again in order to improve its report. I do not think we have a representative of the Sub-Committee here ?

M. OSTERMAN (Suède) : I just had a meeting with Mr Casagrande and he wanted to discuss matters with the sub-committee, and that will be done today. I think he could present the proposal for you on Wednesday if it is possible to postpone the question. It is just a question of a formal nature.

LE PRÉSIDENT : I understand that so long as that new report, Mr Osterman, is not too long, and if you get it finished this evening, it can be duplicated in time to be circulated before Wednesday.

M. OSTERMAN : I am quite sure of that. It is not a question of importance; they are only minor matters now.

LE SECRÉTAIRE : It would be a very great convenience if when you have finished the report or anything you have typed you could leave it in Room 376.

LE PRÉSIDENT : May I ask, therefore, whether it is the general feeling that it would be better to postpone the discussion on the classification of geotechnical literature until Wednesday? Nevertheless, from what Mr Osterman has just said, I think we may not expect any important changes; consequently I would ask you to look at the report, which you already have, and give that your close consideration so that you are aware of the general basis on which the sub-committee is working and on which, I have no doubt, it will present its proposals.

Is that agreeable to you, Mr Osterman?

M. OSTERMAN : Yes.

LE PRÉSIDENT : The Sub-Committee on Notations and Symbols has presented a report — so far, I believe, only in French — and I think you all have a copy.

LE SECRÉTAIRE : The English text is in the post from London and I am afraid that because of the holiday on Friday it has been delayed. I hope to have this at any moment, but we can supply French texts now.

LE PRÉSIDENT : Miss Lloyd will now hand out the French version to those who have not already got one. As far as I know most of you have seen these symbols for no more than two minutes, or perhaps some have seen them earlier this morning. In that case I do not see how we can usefully take a vote or discuss this matter more fully at the moment. Clearly we must have time to see the proposals of this sub-Committee before we can either approve or disapprove. Moreover, I understand that, in this case again, the sub-Committee wishes to have a further meeting tomorrow, so I suggest that we also postpone the discussion until Wednesday.

But I think the Sub-Committee on Symbols must realise, as also the Sub-Committee on Classification of Literature, that it cannot be considered a proper course of action that the sub-Committee meets during the time that the Executive Committee is in session and then call upon our very over-worked Secretarial resources to duplicate about 40 copies of a revised report. These sub-committees were set up four years ago, and I would not have thought it impossible that some final statement might have been reached at least one week before the Conference.

There has been a great deal of difficulty with these sub-

committees, and, as we shall see later on, there are proposals for setting up more of them. I think in the case of the two we have under consideration at the moment useful work has been done, and in subjects which are susceptible to some measure of international agreement. Whether we should set up any more we can discuss later.

Regarding notations and symbols, I understand that the sub-Committee wants to meet only in order to eliminate some of these symbols which are in the lists you now have. If that is all they are wanting to do then I think we can allow them to proceed, and they must merely announce on Wednesday which symbols they want struck from the list and we can then proceed to cross these out. I do not think we can possibly envisage setting up a completely new list with all of these greek symbols, and so on, and have it ready for you in time for you to consider it in Wednesday.

Subject, therefore, to the fact that this new meeting of the sub-Committee will only strike out a very few symbols, then I think we could agree to let them do so. But I must point out that this sub-Committee has met on many occasions and I understood that this was more or less an agreed list, and I do not think it correct now to make any very substantial changes.

So items 5 and 6 will be postponed until Wednesday.

As regards the Sub-Committee on Methods of Static and Dynamic Penetration Tests, no report has been received. A certain amount of work has been done, but at the present moment, from what I can see, this sub-Committee has simply three or four (or possibly five or six) documents, which do not in themselves constitute a report to the Executive Committee. If this sub-Committee, meeting among themselves during the next day or two, can produce a brief report we will do our best to have it circulated, but I cannot promise this, and my previous remarks apply *a fortiori* to this sub-committee. I cannot find it comprehensible that after four years we are still in the position where no report has been produced.

M. VARGAS (Brésil) : I have received in due time reports upon penetration tests and dynamic and static penetration tests from Germany, Argentine, Brazil and Sweden, but only yesterday I received two reports which are of considerable importance — one from the United States on the standard penetration tests and the other one from Prof. Geuze covering the European practices of static and dynamic penetration. So my report was written only on the basis of the countries I mentioned before and did not include the American and European practices.

So I think it would be best not to distribute my report but to postpone discussion of this subject till Wednesday, so that the sub-Committee has a chance to meet once more today and prepare a very brief account of its work. Anyway, I think that the reports from the United States and Mr Geuze are very important for the understanding and knowledge of these standard penetration and static and dynamic penetration tests.

LE PRÉSIDENT : If Prof. Vargas can produce a brief report we will do our best to duplicate it. If this can be done in time we will naturally consider it on Wednesday, but I would point out that this must be a report from the sub-Committee as such — it must not consist of a series of six reports, one from each member of the sub-Committee, which is what it is at the moment.

Point 8 — Résolution proposée par la société nationale bulgare au sujet des langues officielles

LE PRÉSIDENT : We have a resolution from the Bulgarian Society to the effect that the number of official languages of the Society be increased to five by the addition of Russian,

German and Spanish. This, or a similar resolution, if I remember correctly, has appeared before each Conference since Rotterdam, and it has always been decided that two languages are — I will not say sufficient, perhaps, but the most we can manage. The number of printed pages would obviously be greatly increased by using five languages instead of two, and I think possibly for this reason alone the people who are concerned with running the Conference and the International Society would view with great disfavour the addition of three new languages. However, I would very much like to hear the opinion of various members of the Executive Committee on this matter.

M. STEFANOFF (Bulgarie) : Monsieur le président, Messieurs les délégués, le Comité national bulgare est conscient de ce qu'une augmentation du nombre des langues officielles dans notre organisation internationale entraînerait de nouvelles dépenses budgétaires, mais pour un grand nombre de membres qui ne connaissent ni l'anglais, ni le français, il est très difficile et parfois impossible de prendre part aux congrès internationaux.

Il est vrai que pour presque la moitié des pays membres de l'organisation, l'anglais est la langue maternelle ou la langue la plus proche, mais pour l'autre moitié des membres la langue française ne suffit pas. Par exemple, parmi les pays membres de l'organisation, il y a cinq pays slaves pour lesquels la langue la plus proche serait le russe; il y a six pays pour lesquels la langue la plus facile serait l'espagnol; enfin, beaucoup d'hommes des pays de l'Europe centrale et orientale se servent de la langue allemande.

Si la traduction en cinq langues s'avère très coûteuse, je propose d'adopter la pratique de l'ONU, ou de l'UNESCO, où les quatre langues : anglais, français, russe et espagnol, sont officielles.

Sans doute, il serait préférable pour tous les membres de pouvoir porter le nombre des langues officielles à quatre ou à cinq. Mais si ce n'est pas possible je propose une solution de compromis : les deux langues officielles pourraient rester l'anglais et le français, mais avec possibilité d'écrire les comptes-rendus dans les cinq langues, avec des résumés obligatoires en anglais et en français seulement, et la possibilité de prendre part aux discussions du congrès dans les cinq langues, bien que les traductions soient faites comme maintenant en anglais et français seulement.

Je soutiens la proposition d'adoption des cinq langues, mais si ce n'est pas possible, je propose ce compromis. Je vous remercie, monsieur le président.

M. NUNES (Brésil) : Nous pensons qu'il n'est pas opportun d'augmenter le nombre de langues pour la publication des comptes-rendus. Peut-être, dans les discussions orales du congrès, pourrait-on envisager d'avoir une interprétation dans les cinq langues qu'on vient de proposer, mais je pense qu'au lieu de constituer un progrès dans la compréhension internationale des sujets, la publication des comptes-rendus en cinq langues aurait un effet contraire, car les exposés ne pourront pas être lus en français et en anglais, on sera obligé de se contenter des résumés.

Je pense que la tendance selon laquelle on utiliserait deux langues internationales, pour les sciences et en particulier pour la mécanique des sols, est bien préférable, surtout pour les publications écrites. Cependant, pour les discussions orales, s'il est possible d'avoir une traduction simultanée dans cinq langues, je pense qu'il ne peut y avoir aucun inconvénient à adopter la proposition qui vient d'être présentée.

M. PIETKOWSKI (Pologne) : J'ai écouté la proposition bulgare très attentivement et en toute sympathie. Mais ensuite, j'ai fait un petit calcul : à Londres, nous avons deux langues, et nous avons alors deux cabines et deux interprètes. Si nous ajoutons une troisième langue, nous aurons six cabines

et six interprètes. Avec quatre langues, nous trouverons douze cabines et douze interprètes. Enfin, avec cinq langues, nous arriverons à vingt cabines et vingt interprètes.

Je pense que cela représente d'énormes difficultés techniques. Puisqu'avec deux langues nous travaillons bien, je propose de prendre ici mes calculs en considération. En effet, si nous acceptons cinq langues, nous devons assurer à chacune les droits qui appartiennent actuellement aux deux langues de travail. On ne peut pas envisager autre chose.

M. MOGAMI (Japon) : I would like to mention that we had an international conference in Tokyo last year where we had good experience about languages. English was the official language in that case and the Japanese language was permitted to be spoken but not printed. I think the increasing of the number of official languages is very troublesome. We have no interpretation in Japan into five languages. Two languages are, I believe, sufficient, but when there is the need the language of the country where the conference is being held should be permitted as a spoken language.

M. NASCIMENTO (Portugal) : Les difficultés que présentent les réunions internationales en plusieurs langues sont bien connues de tout le monde. Nous pensons qu'il existe une façon de les atténuer, pour la lecture des publications tout au moins, c'est d'avoir de bons vocabulaires. Notre organisation a déjà un vocabulaire, et nous pourrions l'améliorer et le développer. Ceci est un point.

L'augmentation du nombre des langues officielles avec l'adoption d'une troisième langue ouvrirait la voie à une autre augmentation, avec d'autres langues, par exemple le chinois, l'arabe, le portugais, etc... Or, je pense que la tendance devrait être de diminuer et non de développer le nombre des langues officielles.

Je pense que les suggestions exprimées ici quant à admettre la discussion orale en plusieurs langues ont moins d'inconvénients que pour les publications écrites. De plus, la proposition japonaise tendant à admettre la langue du pays dans lequel se tient le congrès a déjà des précédents, avec les Congrès de la Route. Mon avis, cependant, est de maintenir l'anglais et le français comme langues officielles dans les « proceedings », et d'admettre peut-être la discussion orale dans les congrès avec une autre langue.

M. KRSMANOVIC (Yougoslavie) : Nous pensons que nous devons nous en tenir à un principe : ou bien prendre une langue, ou bien augmenter le nombre des langues qui seront interprétées dans les Congrès internationaux. S'il est trop difficile d'adopter cinq langues, nous pensons qu'il serait possible d'avoir trois langues officielles. C'est le minimum.

M. STEFANOFF : Quelle langue proposez-vous ?

M. KRSMANOVIC : Le russe.

M. RAO : I am afraid our discussions are rather dilatory, and I agree entirely with the representative of Bulgaria that we should from time to time examine whether it is possible for us to use more languages. Strictly speaking, a great language like Russian, German or Spanish, whose countries are contributing great advances to this science, should have its value recognised. Nevertheless still the difficulty exists of how to get on with so much interpretation, and especially when our Society has very limited funds (about £ 1,000 in balance), and so on. I think it is not financially possible to go in for a greater number of languages.

Also we must have some information as to whether it would be possible to reduce the number of interpreters.

I therefore submit that we should maintain the "status quo" for the present and ask our Secretary and President to think how to introduce more languages where greater strides have been noted. Therefore we can probably go on expanding

provided on the financial side we are not being put to any greater expense. I therefore submit that we go along with things as they are and do not go in for a discussion regarding any kind of recommendation whether you should have material printed in some languages, whether they should be spoken, and so on. When a member of a host country speaks, of course, that is a very minor concession. The main point is whether proceedings should be published in these languages and whether we should have so many interpreters. I would submit that we should go along maintaining the "status quo".

M. SALAS (Espagne) : La plupart des membres de la société espagnole peuvent facilement traduire l'anglais et le français, mais ne peuvent pas parler ces langues correctement. C'est mon propre cas. C'est pourquoi il serait très utile, pour la société espagnole, que les discussions puissent avoir lieu en espagnol. Il en est de même, je pense, pour la société allemande, la société russe, etc.

Mande, la société espagnole soutiendra la proposition selon laquelle les discussions pourront se faire dans plusieurs langues, parmi lesquelles l'espagnol. Par contre, je pense que la publication des communications devrait être maintenue en deux langues, parce que, par exemple, l'allemand est peu connu en Espagne, de même que le russe.

Les difficultés sont uniquement techniques. Je ne connais pas en détail la technique de la traduction simultanée, mais en voyant ici les cabines d'interprétariat j'imagine que peut-être ces difficultés ont été exagérées. Ce système est, en effet, utilisé dans plusieurs sociétés internationales. Naturellement, l'administration et l'organisation d'une société internationale est difficile, mais je crois que nous ne pouvons pas, en quelque sorte "not meet the challenge"! Nous devons affronter ces difficultés.

Si l'on décide que dans les discussions la langue espagnole sera utilisée comme langue officielle, je suis en mesure de dire que pour le prochain Congrès la société espagnole soutiendra financièrement la société internationale, afin de couvrir les frais entraînés par la traduction simultanée en langue espagnole.

LE PRÉSIDENT : I think probably we have now heard a representative selection of views on this matter which seem to me to be on the whole consistent. No one, I think, is suggesting that we should publish in more than two languages.

M. TSITOVITCH (U.R.S.S.) : La question de l'introduction de langues supplémentaires est certainement très difficile. Bien entendu, il serait très souhaitable, selon la proposition bulgare, pour plusieurs représentants ici présents de parler dans leur langue maternelle.

Les difficultés pourraient être résolues si chacune des délégations nationales apportait non seulement une aide financière pour l'interprétation, mais une aide d'un autre ordre : par exemple, l'U.R.S.S. pourrait faire des résumés en russe, et d'autres pays feraient de même dans d'autres langues. Le fait de publier un résumé non pas en deux langues mais en quatre ou cinq langues ne comporte pas de grandes difficultés, et ceci nous permettrait de porter la documentation du Congrès à la connaissance d'un public beaucoup plus large.

La langue russe est employée largement dans les démocraties populaires, ainsi que dans plusieurs pays asiatiques, et également, à ma connaissance aux Etats-Unis un grand nombre de techniciens et d'ingénieurs connaissent bien le russe.

Ainsi, je crois qu'il suffit d'établir toute la documentation et les correspondances en deux langues, mais en laissant la possibilité de s'exprimer à la tribune dans sa langue maternelle, ou dans la langue du pays où se tient la Conférence. De plus, il faut admettre de traduire les résumés des rapports présentés en quatre ou cinq langues, parmi lesquelles le russe.

Si messieurs les membres du Comité Exécutif estiment que

la question est vraiment trop difficile pour être résolue tout de suite, on pourrait en reporter la discussion à la prochaine Conférence internationale, c'est-à-dire à notre Sixième Congrès international.

M. ZEITLEN : Speaking personally, of course, I am quite satisfied with English and French — but that does not matter from the point of view of Israel. I might also point out that French and English are the dominating languages for our communications and also for the worlds with which we are mostly concerned in contacts with other countries. However, reverting to our present position, which is that of members of the Executive Committee, I think we should recognise the dominant part that Russian is playing in technical literature. I presume that English and Russian are *the* technical languages in the world of today. Hence I am impressed by the suggestion that the delegate from Russia has made, that a summary be published in Russian as a recognition of their contribution, in particular the growing contribution they are making in the national society meetings, which I notice has increased this year over what it was in 1957.

LE PRÉSIDENT : I was not clear when Mr Tsitovitch was speaking whether by "reports" he meant that the summaries should be in several languages in the printed proceedings or only that, for example, the agenda for the Executive Committee, reports by sub-committees and similar documents should be in several languages. Could I know which was implied ?

M. TSITOVITCH : Je propose d'inclure la langue russe pour les résumés des rapports présentés, mais non pas pour la correspondance entre les pays, ni pour les rapports présentés par les sous-commissions.

LE PRÉSIDENT : I think we could consider this question under two headings. First there is the question of permanent printed proceedings of our Conferences. In general it seems to me that everybody is happy with the existing situation, save only the suggestion that perhaps the small summaries at the beginning of papers might be in three languages and not in two. We either stay exactly as we are in French and English, with the summaries and the papers in either French or English or, secondly, we have the summaries in three languages. No one, I think, is asking for more than this. Is that agreed ? (*Proposition adoptée*).

The extra cost of three summaries would probably not be very great; therefore I think that we may seek the general opinion of this Committee, by putting up hands, to see whether we feel that it is desirable to increase the number of summaries at the beginning of each paper to three instead of two. As to which language this extra one should be, we can discuss this in a minute. Let us for the moment consider whether we are in favour of having three language summaries.

M. RAO : Mr President, do you not think it better that we postpone this problem, if we are going into details like this ?

LE PRÉSIDENT : I do not think so, Dr Rao, because it seems that there is a very general measure of agreement.

M. RAO : But the question of a fourth language would be raised, and so on; so I say let it be discussed in greater detail later. I think it would be better to postpone. That is what the Russian delegate has said.

LE PRÉSIDENT : I think the Russian delegate suggested that it might be postponed to the next Conference. This seems to me too long. We should decide this matter before we leave Paris.

M. RAO : Meanwhile we can have investigations by the Secretary, and the possibilities, and so on ?

LE SECRÉTAIRE : As to the possibilities Dr Rao referred to, I do not think there is any difficulty in adding a third summary to the proceedings. The amount involved, say 400 papers, is probably something in the order of 150 pages, and that is a relatively small portion of the whole because it will be of value, and I do not think that anyone organising a conference would find that a particular burden. Certainly we would not have done so in London.

M. KÉRISSEL (France) : Vous venez de proposer le triple résumé, et le bilinguisme pour les communications. Est-ce que ceci comporte ou non les figures avec sous-titres en trois langues ? Ceci me semblerait plus difficile à réaliser.

LE PRÉSIDENT : As a footnote to Mr Kérisel's remark, I have often wondered whether any very useful purpose was served by having captions to the figures in two languages. The paper is in one language. But that is another issue.

I think that the suggestion at the moment, Mr Kérisel, is only that the summaries should be in three languages and no change whatever should be made in the papers themselves, including the figures. I think we could seek the opinion of the Committee on this point. Would those in favour of having three summaries put up their hands ?

I see there is a very clear majority for having the summary in three languages. If you like we can regard that as testing the feeling of the meeting, and we could only make a formal resolution on this matter later. I would be quite prepared to do this. Would that be agreeable ? It seems to me quite clear that generally we feel this is desirable. Dr Rao, however, has made the point that we have not had very long to think about it. If you like I would be prepared to delay a formal vote on this matter until the next meeting. Is that agreeable ? (*Proposition adoptée*).

As to the additional language, this, I think, is something we could well discuss among ourselves and take a vote when we come formally to consider the problem later.

Now comes the second part of the problem, the question of how many languages one should allow to be spoken during the Conference itself. This appears to me not to be a matter of principle but a matter purely of techniques and finance. It is clearly possible to have four, or possibly five, languages with no difficulty technically. Financially it is costly. I would say that in principle it is a very good thing that people should be able to speak in the language they are most familiar with, even though it cannot always be their mother tongue.

I would suggest that this matter be left to the Secretary to investigate whether we can afford to carry out the proposal put forward by the Bulgarian representative and mentioned by no less than seven other speakers — all of whom said almost exactly the same thing — that if it turns out to be financially possible we recommend to the host country for the next Conference that they should arrange for simultaneous translation from, perhaps, four languages. I see no objection to this provided we stick to the principle that the reports when printed are only in English or French.

And if such countries as Russia and Spain are willing to help financially in this matter I see no reason why we should not very gratefully accept their offer and this no doubt would help at a future Conference. The order of magnitude involved would be about \$ 500 per language — perhaps \$ 400.

M. KÖENIG (Germany) : Germany would help also to finance the fifth language.

LE PRÉSIDENT : Yes, if we are speaking of five languages it will be English, French, Russian, German and Spanish. We are grateful for your offer to help financially, but I think we are now in the realm of mechanism and not of principle. So long as we agree in principle that people should be allowed

to speak in the different languages, if financial arrangements can be made, this is sufficient for the time being.

May I ask whether this is agreed? Would you please put up your hands if you agree with the several languages?

(Vote à mains levées).

It is quite clear that we have agreed to this.

M. TSITOVITCH : Je pense que les organisations nationales pourraient apporter une aide dans la traduction de ces résumés. On pourrait procéder de la façon suivante : les rapports faits dans telle ou telle langue devraient être envoyés dans le pays s'exprimant dans la langue dans laquelle on devra traduire tous ces rapports, pour la rédaction des résumés, et l'organisme national assurerait la traduction, ainsi que l'envoi au secrétariat des résumés ainsi traduits.

M. JENNINGS (Afrique du Sud) : If it is \$ 400 from one language into another, what is the cost, is it \$ 400 into five languages?

LE PRÉSIDENT : I understand that if we had another box with a translator this would cost approximately \$ 400 for the length of the Conference.

M. JENNINGS : And for five languages?

LE PRÉSIDENT : As I mentioned before, we are involving ourselves in very technical matters. The principle has been established and I will ask the Secretary to look into the matter of finance, and he will have discovered the answers long before the people who are working on the next Conference need to know the answers. If he discovers that the cost is entirely prohibitive there is no problem : we obviously cannot afford to do it. All we are saying now is that if we can afford to do it, especially with help from several countries, then we will agree to do it.

This is sufficient on item 8, and it represents a considerable change in what we may be doing at the next Conference.

Point 9 — Résolution proposée par la société nationale de l'Inde

LE PRÉSIDENT : I might perhaps read the resolution :

“ Resolved that the United Nations should include in their economic programme setting up of co-ordination centres for research and teaching in the field of soil mechanics and foundation engineering in such of the regions where such facilities do not exist at present.”

I have no doubt Dr Rao would like to speak on this point, but I must say that it seems to me that it is a matter for the individual nations rather than a matter for a learned society. We are a scientific and engineering society, and I do not think that we are in a position to make resolutions to the United Nations. I think if we were to do so it would only be in the nature of a pious hope.

M. RAO : Probably the President is correct in what he said, that it may be a pious hope, but what it has at the back of it, what was at the back of the minds of our national committee at the time the resolution was passed by the First Asiatic Regional Conference, was this : that there are many countries in the world, especially regions of Asia and Africa, where the soil science is not promoted to that extent and in consequence we find that a large number of structures, very costly, are going up which could be done much more economically, and where a considerable amount of money could be saved. Therefore our committee felt that the United Nations Organisation, which operates what is known as the “ Special Fund ”, which they give from time to time, could say that in the interests of soil science and the interest of economical building of structures all over the world a special United

Nations fund could be established in such places where this science is not easily advanced. That is the idea of it.

I quite realise, Mr President, as you have said, that a learned body of this kind cannot make resolutions to this effect. Nevertheless that was the idea at the time the resolution was made up : that the United Nations be requested to allot special funds for the establishment of centres of soil science.

M. ZEITLEN : Having been a United Nations “ expert ” (in quotation marks) from 1953 to 1958 I feel that I have had a little experience with the workings of that Organisation, and I want to suggest that we should not be at all timid about approaching the United Nations with such a suggestion. After all their basic function is to help in development and a big item is the development of what are called the “ developing ” countries.

Now the way the Technical Assistance Programme is worked — it depends upon an individual nation's furnishing to the U.N. a request for technical assistance in accordance with its national development. If the U.N. wishes to get into regional development schemes it depends upon its own facilities, its own recognition of the problem, to perceive what is of regional importance. Hence without receiving reminders and information as to what ought to be of interest to the various regions they might well be limited in recognising those various needs. Hence I think it is quite in order to suggest what is good for soil mechanics in the world.

Now in respect to the particular suggestion that Dr Rao has brought forward I wanted to point out that, as he mentioned, it was brought up at a regional conference of the Asian region, and this is definitely something which is not of just national interest to India but of interest to the region. So I would suggest that it falls well within the province of the international type of assistance that the United Nations is seeking to give; and I am sure that if we make the suggestion as proposed it will bring the United Nations into a position where they will look into the question and decide whether or not it is worth while.

M. PIETKOWSKI : Je suis un homme réaliste et je veux regarder les choses dans leur réalité. La proposition de l'Inde est très intéressante. Mais si, pour nous, la mécanique des sols est la chose la plus importante, lorsque nous présenterons notre résolution aux hommes politiques, ils demanderont : « Qu'est-ce que c'est que la mécanique des sols ? » Nous leur répondrons : « C'est une chose très importante. » Alors, ces hommes politiques nous diront : « Au secours ! Aidez-nous à introduire votre proposition ! » De notre côté, nous répondrons : « Nous avons bien compris, nous sommes prêts. » C'est tout ce que je voulais dire.

M. VAN DER VEEN (Hollande) : Having worked, as Prof. Zeitlen also has, for some time with the United Nations I, too, have some little experience, and as far as my experience goes I fully agree with what he has said. I think it would be a good thing to draw the attention of the United Nations to the possibility of founding soil mechanics laboratories and institutes in some of the countries which are just developing. I think it would be quite a good thing to do, and I would like to suggest that the Society writes a letter — I, too, think, like the President, that the resolution as proposed cannot be taken by this Committee — drawing the attention of the several United Nations agencies involved with help to developing countries. I think the Secretary or the President could do that.

LE PRÉSIDENT : Whereas I am rather inclined to agree with Prof. Pietkowski, that it is conceivable that very little good will come from such action, I also feel that very little harm will come from it, and it may possibly do some good. Therefore the Secretary will write a letter to the United Na-

tions, and perhaps before we leave Paris he will have a word with Zeitlen and Rao and van der Veen, to make sure that the points he has written cover the ideas which they had in their minds. Is that agreeable?

(*Proposition adoptée*).

Point 10 — Proposition soumise à la discussion par la société nationale de l'Inde

LE PRÉSIDENT : The Indian Society has also put forward the proposals in item 10. The first concerns the desirability of issuing by the International Society a consolidated report of the work carried out by the various national committees of the Society, and making it available to its members — if necessary by payment. I think there is a fairly clear-cut answer to this proposal, namely, that it has already been tried and found not to be practicable. After the Rotterdam Conference various attempts were made to produce a consolidated report of this kind and I believe I am correct in saying that, generally speaking, we received long reports from people who had very little to say and few reports from those who should have had a great deal to say, and I am afraid that this is a universal experience : those who are most able to contribute to this kind of report have the least time to do so — and conversely. I think that there is nowadays ample opportunity for the publication of papers, apart from our own proceedings

M. RAO : This again, sir, is a resolution passed by the Asiatic Regional Conference, not by the Indian society alone. What we are thinking of is a sort of newsletter, if a report cannot be published, in a co-ordinated way on various things. We can start giving information regarding activities of various bodies of the International Society in soil mechanics and engineering foundations and maybe also, every six months, say, containing information in an abstract way on the various aspects of work being done or experiments being done.

In support of this I wish to state that the recent Congress on Large Dams decided to issue a newsletter of this type, including the abstracts of the agreed bibliography of the subject. They are starting that — the resolution was passed last month at Rome. I therefore submit for your consideration whether we should not also undertake the issue of a newsletter — if you like to call it that — stating briefly the activities of the various nations engaged in soil mechanics. If every six months cannot be managed, make it once a year. This will keep in contact the various members, as well as meeting every four years, and help us to create a sort of inspiration. It might also increase membership in the respective countries. It would give an impetus and a sort of comradeship between the various countries. It would not be exhaustive, but just giving a little information of important work in progress, and even that information would be of great use.

That is my submission, sir.

M. TSIROVITCH : Monsieur le Président, notre organisation nationale soutient pleinement les propositions du représentant de l'Inde se rapportant à l'information des pays asiatiques sur tout ce qui se passe dans le domaine de la mécanique des sols et de la construction des fondations.

L'Union Soviétique est un pays européen, mais elle comprend aussi dans son sein plusieurs républiques d'Asie. Par conséquent, les représentants de ces républiques asiatiques de l'Union Soviétique prendraient part, avec grand plaisir, à des conférences régionales portant sur des questions de mécanique des sols. D'autre part, notre organisation nationale prendrait volontiers part à des discussions dans des conférences régionales.

Cette participation de l'organisation nationale pourrait comporter la présentation des rapports, la discussion au cours des réunions, la présentation des documents nécessaires sur le sujet, etc.

M. NASH (Grande Bretagne) : The Editorial Committee of the *Geotechnique* is anxious to widen the international flavour of the magazine and would be happy to publish brief news items received from any country. Perhaps this might help Dr Rao.

LE PRÉSIDENT : I am still of the opinion that the difficulties are very great in producing a report of all the research that is going on in the world. Dr Rao has, in fact, slightly modified his proposal by suggesting that what is needed is something in the nature of news items, so that we know what is going on, and Mr Nash has suggested a way in which this might quite easily be done. I think Mr Tsirovitch was talking about regional conferences. We have already experienced a number of these. They are very successful, and there is no reason why considerably more regional conferences should not be held. I do not think that the Secretariat would be willing to undertake the production of a consolidated research report: it is an overwhelmingly difficult task.

The next proposal — again from the Indian society — is in connection with the need for international research committees for studying important problems, and they make some suggestions which you will see on your agenda and which I do not think I need read out.

Again, if I may start by making a few comments, we have found during the past four years extreme difficulty in working these international sub-committees, even on problems which might at first glance appear to be rather straightforward subjects, such as classification of literature. When one comes to a problem such as, for example, number (iv) in this list — design requirements of seismic regions — which is itself a very difficult problem, I see no hope of an international sub-committee reaching any measure of agreement.

Unless we are going to take this whole matter of sub-committees very much more seriously it would need considerable finance. One of the great difficulties has been that we decide on, say, five people to form a sub-committee, each of whom is conversant with that topic, but the fact tends to be overlooked that one is in South Africa, one in India, two in Europe and one in North America. In spite of all the advances of applied science these distances are still far too great for any effective work to be done between these people. They are busy men. They receive a letter when their mind is on some completely other topic — I can speak quite clearly from my own experience — and they put the letter aside. Once it is put aside it may remain there for a week, a month or six months, and by this time someone has had some other thought, and the whole thing goes on in an unco-ordinated manner.

I would say if we are going to take these sub-committees seriously we shall have to provide very substantial finance, because it is absolutely essential that the people should meet on at least three occasions, all of them together, because it is only by discussion that these problems can be worked out. This might perhaps not apply to something fairly straightforward, like symbols, but for really difficult technical problems this is prerequisite, as I see it. There is no doubt that although our financial situation is sound in terms of our situation at the moment, it could not possibly have several of these sub-committees working. The cost would amount to several thousand pounds.

Therefore, although in principle this is desirable I simply do not see how it can work. For example, in concrete there is an organisation of exactly this kind in Europe and these people meet three times a year, quite a number of them, first Rome, then London, then Stockholm, and so on, but they are backed by industrial financial resources.

M. RAO : The idea of this resolution is similar to the one that is being put at the International Congress on Large Dams. What happens is that subjects are discussed but they

do not receive any attention because time is reduced to three minutes — and it may be even further reduced for future conferences — so that in such a short time you cannot maintain any concentration or useful discussion. Therefore it was felt, under similar circumstances, in the Congress where similar difficulties are met with that something should be done and what they did was to constitute certain sub-committees — for example, one on concrete — and they take three or four questions and go on discussing them. I have participated in these committees and found them extremely valuable. Of these various subjects discussed by the complete sub-committee one question is given to be discussed in the general sessions. There is a similar sub-committee for underground work in the International Congress on Large Dams.

Therefore I was thinking that similarly we could constitute sub-committees to take up subjects which are of importance and value to the majority of nations. We could constitute one or two correspondence sub-committees and they could meet after the conference and work by correspondence, and otherwise meet to discuss the general aspects of the problem. That is the idea of requesting that some sub-committees be appointed. I am not thinking of such a committee as concrete. The idea is a little more than that. It is a practice being followed in the International Congress on Large Dams and I thought it very good and extremely valuable, and that we also should have it.

M. KÉRISEL : Monsieur le président, pour ma part, je pense qu'il est excellent d'orienter les discussions, et ce matin, à la séance préparatoire se rapportant aux discussions qui vont avoir lieu, la tendance a été de concentrer les débats ultérieurs sur des sujets bien déterminés.

Ce sera précisément, comme l'a exposé ce matin M. Mayer, la tâche des présidents, des vice-présidents et des rapporteurs généraux que de délimiter les sujets de discussion.

Je pense, pour reprendre les termes de l'intervention du Dr Rao, et également l'opinion de notre président, qu'il n'y a que des avantages à multiplier les conférences partielles qui se tiennent entre deux Congrès quadriennaux, à condition surtout que leurs discussions portent sur des sujets bien précis, et qu'elles ne soient pas publiées.

A ce sujet, je pense que ce pourrait être une œuvre utile de la part des divers groupes, de leurs présidents, de leurs rapporteurs généraux, sinon de fixer du moins d'orienter les sujets de discussion dans ces réunions partielles, entre deux Congrès quadriennaux. Vouloir prendre à la lettre la proposition de notre collègue de l'Inde serait, au fond, refaire des Congrès internationaux presque tous les ans. En tout cas, ce serait certainement entrer en concurrence avec les Congrès quadriennaux que de vouloir faire des « abstracts » complets sur les sujets qu'il a indiqués.

Par contre, je crois fort utile d'orienter, d'« aimer » les discussions dans ces réunions partielles, entre deux Congrès quadriennaux. On a souvent résumé les discussions partielles, les réunions partielles qui ont eu lieu depuis 1957 jusqu'à ce jour : tous les sujets qui y ont été discutés ne sont peut-être pas les plus importants. Je crois que ce serait faire œuvre utile que de recommander qu'à la suite des discussions dans les divers groupes de notre Congrès international on puisse recommander un certain nombre de sujets importants, de « topics » comme vous dites en anglais, sur lesquels porteraient les Congrès partiels dont on ne saurait trop louer l'activité.

M. OSTERMAN : I have a little experience of both national and international committees and I have found that national committees on certain topics work very well, and I have seen plenty of them, not only from Sweden, and it is a pity that the international committees have certain difficulties. But is it not worth trying to have the same meaning from one country to another? You might indeed think that you can

handle things if a sub-committee meets and holds a conference and that things can be cleared in an hour, but it is not so. It is necessary really to penetrate the questions, otherwise one cannot go on, and the international committees who have got reports from national society committees have produced very valuable things.

LE PRÉSIDENT : It seems that opinions are rather divided on this matter. There may be a few highly specialised topics which can be dealt with, even if with difficulty, by international sub-committees, but major problems — for example, pore pressures — are I think much better dealt with, as Prof. Kérisel has suggested, by the small regional conferences. On that particular subject we had a conference in London which lasted four days, during which quite a large number of engineers came not only from England but from all over the world, and we had an extremely fruitful discussion. I am sure that during the course of this Conference various topics will be raised, some of which can perhaps be best dealt with by regions, and there might be one or two highly specialised points on which we may decide to set up a committee. But I think that to set up, for example, the six committees mentioned here would not be really practicable with our very limited finance, for the reasons I have already given.

Is this view acceptable, or do people feel strongly about this matter?

M. ZEITLEN : I wanted to make the suggestion that perhaps it might be combined with any action on item 9 — in other words, an opportunity for the United Nations to subsidise interchange of people in connection with these regional centres as far as the financial aspect is, perhaps, the most important aspect.

LE PRÉSIDENT : As you have already heard from the Secretary, the U.A.T.I. has given very useful financial support to the work of our regional conferences, so we are already tapping funds of that kind. I think they would be more prepared to support small regional conferences than to provide funds for a few people to move around having a jolly nice time in Venice for a week, or something of that sort.

There is a third proposal from the Indian Society. It concerns the necessity of reporting to the International Society any unusual behaviour experienced in respect of earth structures, for circulation to all the national committees. I hope that Dr Rao will not think I am obstructing all of his proposals, but in this case I must say it does seem to me the obvious way of bringing such an occurrence to the notice of the world as a whole is to publish it in one of the recognised journals.

M. RAO : *Geotechnique* may be the one for you...

LE PRÉSIDENT : It may be one, but there are many other places.

M. RAO : But there may be some places where we can look for them.

LE PRÉSIDENT : I think one has not only to read a single journal in order to know everything that is going on, and I think we are all perfectly used to the fact that we have to look in a large number of places to be aware of what is going on.

Before we break I would like to mention that the Australian Society has proposed a resolution, but we only received it ten minutes before this meeting. It is a very brief one and will be circulated before we meet again.

It now adjourns the meeting of the Executive Committee until Wednesday, at three o'clock in the afternoon, in this same room.

La séance fut déclarée close à 13 heures

DEUXIÈME SÉANCE

Mercredi 19 juillet 1961, à 15 h 15.

Le professeur A.W. SKEMPTON, F.R.S., préside la séance.

LE PRÉSIDENT : We now resume our work, gentlemen, and we consider again item 5.

Point 5 — Rapport du sous-comité chargé de la classification de la littérature géotechnique

LE PRÉSIDENT : This is the report of the Sub-Committee on the Classification of Geotechnical Literature. I understand that Prof. Casagrande will speak on this point.

M. A. CASAGRANDE (États-Unis) : I take great pleasure, on behalf of my fellow members of the Sub-Committee on the Classification of Geotechnical Literature, to report to you that our sub-committee has been able to agree on a major framework, which we have distributed in the form of the Secretary's report of May of this year, and there is only the following correction to be made, which is before you.

I might read this supplementary report :

“ The Sub-Committee met on July 17, 1961, and reached agreement on the use of the five main divisions as presented in the Secretary's Report, with minor changes in some of the headings as shown below, but with the purpose of each of these major divisions unchanged :

- 0 “ General ”
- 1 “ Geotechnical data and Investigations ”
- 2 “ Theories and Methods of Analysis ”
- 3 “ Construction Procedures and Equipment ”
- 4 “ Design and Description of Projects and other Applications ”

The Sub-Committee believes that a number of improvements in the sub-division could be made. For this purpose it is recommended that this Sub-Committee be reappointed in order to complete this task ”.

I might say that the sub-committee has not been lazy : we have worked hard, and we have had the benefit of the advice of many of our colleagues; each of the members consulted frequently others. In particular I may mention that our President, Prof. Skempton, has played also a vital role in the efforts of our sub-committee.

The difficulty we have had over the years is that we have tried very hard to adhere to a decimal system, also in the first order of classification to 10 groups, and that created all sorts of difficulties : we simply could not arrive at agreement. Finally, at a meeting in January of this year in London which was also attended by our President we succeeded in breaking through this number barrier, so to speak. We realised that the only way we could ever agree was to do something that would permit much more flexibility. What we have done gives us that flexibility. In fact we are able if necessary to add additional major divisions, and also among the minor divisions on which we have not yet fully agreed we have now much more flexibility.

LE PRÉSIDENT : In thanking Prof. Casagrande for introducing the report of this sub-committee I should like also to

thank the members of the sub-committee for the great deal of work they have done, and in particular Mr Flodin of Sweden, who has acted as Secretary to the sub-committee.

The document which we have under consideration is Appendix A in the report prepared by Mr Flodin — “ An International Classification System (Majority Proposal) ”. I think I should be right in saying that the words “ majority proposal ” are now redundant : this Appendix A is in fact the sub-committee's proposals, subject only to the sub-headings being reconsidered. Is that so, Prof. Casagrande ?

M.A. CASAGRANDE : That is the proposal, with this minor change in the main headings.

LE PRÉSIDENT : So we are considering Appendix A, the main headings of which remain unaltered except that N° 3, as Prof. Casagrande has just told you, becomes now “ Construction Procedures and Equipment ” and N° 4 has the words “ and other applications ” added.

As you will have heard, the sub-committee are now unanimous in proposing those as the five main headings. You have all had this document. The changes are so extremely minor that I cannot imagine they will give rise to any further discussion, so I think I will ask whether you are prepared to accept the report from this sub-committee in the sense they are proposing.

M. K.L. RAO (Inde) : I suggest that N° 4 be altered to “ Design and Description and Behaviour of Projects ”, instead of “ and other applications ”.

LE PRÉSIDENT : I am not quite sure that one can refer to the behaviour of a project. Would the sub-committee consider the removing of the words “ and other applications ” and leave it as “ Design and description... ” ?

M. R. PIETKOWSKI (Pologne) : Could I speak in general about this classification ? This work of classification has been proceeding for many years now and the last report is a big book on this matter. I think the general headings must be taken by us they are proposed, but not the details. In the proposal, Appendix A, I find, for instance, such cases as this : “ No. 133, Test pits and test tunnels ” and “ No. 45, Tunnel and Conduits ”. I think that the classification must not be so specified.

M. G.D. AITCHISON (Australie) : I do not want to speak in detail about this proposed classification because one could talk details for ever, but I would like to speak on a matter of very broad principle. This classification as it was originally intended was a decimal classification, and the propositions which we have seen over the years, originally from the Swedish group and subsequently from this group, have adhered fairly well to the concept of the decimal classification, in the sense that we have had 10 or nearly 10 sub-groups at each level of our classification. One of the advantages of such a decimal system of classification is that it permits rationalisation of

the recording of data, and we in Australia, since we were in a fairly formative stage in our work, have very much appreciated this idea of a decimal classification because it has seemed to us to be the basis for the utilisation of modern business equipment for the recording of all types of library data. All of this business equipment, whether it be in one form or another, works essentially on the decimal system : whether you are working with an elaborate or a simple system, you still work essentially on a decimal system.

The original classification, which still corresponds roughly to the minority proposal (or what was the minority proposal) had this arrangement of 10 categories at each level, and because of this particular breakdown which existed it seemed possible that you could utilise this classification at a four-digit level. However, if one transposes this classification now and condenses the first category into only five groups one finds if one looks at this classification that it begins to be very difficult to operate at a four-digit level of classification and in many cases it would be impossible to go to five digits in operating a classification. Whether this is done manually or by machinery really is irrelevant : the whole thing is that with this new proposal one is faced now with using at any level of the operation a five-digit classification, and we are now getting to very nearly the complication of the original UDC classification, which has to have approximately seven digits to be workable. We have thus lost quite a percentage of the advantage which appeared to be gained by operating a highly specialised geotechnical classification for our own purposes.

We in Australia believe it is very easy to operate a decimal classification at four digits to cope with all library material. One can recover up to 10 units on a GTC classification, in other words, one can record 10 subjects, so there is no problem if there is a little bit of overlap in these subjects. The whole system becomes very easy if depleted to four digits. At five digits there is no machinery at present that can cope, and I believe one of the future trends in coping with our complicated literature is that of the utilisation of modern coding and classification machinery, and I would like to see no action taken at this stage that would prejudice that particular type of advance.

I therefore suggest, Mr Chairman, that we look very carefully at the complications of reducing the initial classification from 10 units to five.

LE PRÉSIDENT : So far as I can see we use three digits in this system, not five.

M. AITCHISON : In specialisation I think you will need to go to five. I could quote cases.

M. J.G. ZEITLEN (Israël) : I trust that I will not be considered a heretic. As a newer member of the Executive Committee I am interested in hearing if it is possible to sum up in very brief terms some justification for the sub-committee at all, because I know before coming to the meeting I discussed very briefly with the Librarian of our Institute of Technology the implications of operating a classification system for our geotechnical work, and he was very much horrified. There are enough precedents for specialisation in the branches of the Dewey decimal system and others, so I trust it will not be out of place to ask that some justification be provided, because my own impression is we overlap into the work of so many other disciplines that before we set up our own system I think this needs some justification.

M. D.L. TOWNSEND (Canada) : I should, I think, preface these remarks by saying that they are perhaps the viewpoint of an individual, rather than that of the Canadian Committee, since we have not discussed this system in any detail.

One of the points I have been rather perturbed about has

been the operation of the system in a private, institutional or professional library which is on a much smaller level than you would find in a large institution. I think for a small professional-type library I personally support, as I think some of my colleagues in Canada do, the minority proposal. It has the advantages of existing with only two numbers, is relatively simple, and can be adapted by the whole professional practice of the individual without having a complex system.

Now the change from the minority proposal to the present proposal has been upon grounds of greater flexibility. As yet I can see no justification for this greater flexibility, nor can I see that the present majority proposal is more flexible. I would therefore appreciate comments by the Committee on the greater degree of flexibility which is to be developed by the new system.

M. NASCIMENTO (Portugal) : Nous avons un laboratoire du génie civil, avec une documentation sur tout ce qui est du domaine du génie civil, à Lisbonne. Si nous adoptons la classification décimale de l'organisation internationale de documentation, nous ne pouvons pas adopter un système qui ne puisse être harmonisé avec ce qui existe au génie civil.

Nous avons, au laboratoire, une section spécialisée dans la classification et la documentation. Il me semble difficile d'aboutir ici à une conclusion dans un domaine aussi particulier. Je propose que chaque société nationale, dans un délai à fixer — de deux, trois, ou même six mois — présente à notre organisation un avis sur les répercussions de cette suggestion du Comité dans les systèmes nationaux de documentation.

Ayant cet avis de toutes les sociétés nationales, le comité de documentation pourra réexaminer la question, et, orienté par le Président du Comité d'Organisation, pourra adopter une solution qu'il soumettra alors à l'Organisation Internationale de Documentation.

M. B.A. KANTEY (République d'Afrique du Sud) : Dr Aitchison has presented his point of view, but he has rather modestly not said that Australia has attempted to put a classification system into practice, in the form of a punch-card recovery system. We feel we would like to hear the views of other delegates who have tried the practical applications of a classification system before giving our support, or otherwise, to the system proposed.

M. DA COSTA NUNES (Brésil) : A notre point de vue, nous ne pouvons pas séparer la classification de la documentation de mécanique des sols du système général du génie civil. A notre avis, nous ne pouvons pas créer une classification qui soit en opposition avec celle des autres matières intéressant les ingénieurs. Il faudrait alors, dans toutes les bibliothèques du monde, créer une section spéciale pour la mécanique des sols.

Si nous arrivons à une classification décimale, on pourra tout simplement substituer dans la classification internationale les numéros qui sont ici à ceux que nous proposons. Mais si nous créons quelque chose de différent, nous allons retrouver dans la documentation internationale un problème semblable à celui de la conversion des unités métriques en unités anglaises. C'est un problème artificiel qui gêne tous les développements de la technique.

En conséquence, je voudrais soutenir la proposition du délégué portugais, afin d'étudier plus à fond la question, avec des experts en documentation, car je ne pense pas que nous soyons en position — je ne suis pas moi-même en position de voter la proposition en question en pleine connaissance de cause.

M. T. J. OSTERMAN (Suède) : Firstly I will say some words to the member from Israel. It is really necessary to have a new documentation for papers, especially in the research institute, because of the fact that it is not only necessary to put books somewhere but it is really necessary immedia-

tely and in a very short time to cover the subjects which belong to a separate subject. We have in other connections discussed this with one of the persons from UDC, and it was a very interesting discovery that he who represented UDC had just arranged for a new classification system on buildings and it was another sub-division for everything, so to say, and he said that as far as he could see it was no trouble at all to put in a new system in soil mechanics if the soil mechanics people wanted to change the numbers.

Of course Mr Aitchison is right that there cannot perhaps be any difference whether it is a hand system or a machine, if you wanted to go into details. I was on that line before and I have nothing against it, and I go over from the minority proposal (it was another proposal at that time) to this new system of five numbers — it was forced upon me. As you see, in a company there are many persons who say to you "Can you not go along with the others?", and you simply get tired enough to be ready to go over to the new system, if you cannot find enough really strong reasons not to be tired, and that is what I have to say. We rather oppose the classification system, and I will not say that the majority proposal is better than the minority proposal from my point of view, but I have gone over to the majority proposal only because of the fact that I did not see any possibility to go the other way, otherwise I should have done so.

LE PRÉSIDENT : Time is running on, gentlemen. I would remind you that the sub-committee was set up at the last Conference and, as I said in my introductory remarks, it has done a great deal of work and produced this report. You can either accept it or reject it, or you can advise the sub-committee to consider it again. I shall now ask Prof. Casagrande whether he would like now to make some closing comments on the discussion; but I would add that I am unable to understand how the majority proposal cannot be integrated into a decimal system.

M. A. CASAGRANDE : That was the first point I was going to make, that the majority proposal (or the proposal, now, of the sub-committee) is in fact still a decimal system, and I do not see any reason why one should get into any difficulties on that account. If we can adopt 10 classifications on the first level we can have five major groups, which still leave us five groups for flexibility in the future if some day one of our colleagues, for example, demands a separate major division, or some other developments take place. We do not know how this world will shape up in the future: we have the flexibility.

The sub-committee has the intention to review very carefully the sub-divisions also from the standpoint of flexibility. We do not intend to create a classification that will prevent the addition of further groups if necessary. Still, if we compare the present proposal of five major divisions with the former proposal of 10 major divisions the difference is not one of order of magnitude: we are not changing the number by a factor of 10; we are merely changing the number by a factor of two — that is all. So I really see, personally, from a technical standpoint, the standpoint of mechanics of classification, no difficulty. I cannot see how the objections that have been raised are valid on that ground.

I would like to suggest that we adopt one of the recommendations made now: that after the sub-committee has finished its task the report should be submitted to all the national committees, and that after a period of not more than six months all the comments by the national committees should be submitted to the International Society and then studied by the sub-committee, and that we should do everything we can (if this is adopted) within the limits of practicability, including everything that is pertinent among the suggestions that are made.

LE PRÉSIDENT : The proposal before us may be summarised as follows: the sub-committee proposes the acceptance of the five major divisions and, purely as working proposals, the sub-divisions. But they are themselves willing to go on considering the sub-divisions, and they propose circulating these later suggestions to the national committees; and that when they have received the comments from the national committees in due course they will produce a consolidated final report.

That is the proposal before you. I will ask those who are prepared to accept that proposal to raise their hands. (*Vote.*)

LE PRÉSIDENT : The proposal is *accepted*.

Point 6 — Rapport du sous-comité chargé des notations et des symboles

LE PRÉSIDENT : As I mentioned at our last meeting, this sub-committee had in fact produced its report and you have had at least the French version — and I believe that by now some of you, at any rate, have had the English version. However, as we are only concerned with symbols I think all of us will be able to discuss this list in terms of the French version.

I also mentioned at the last meeting that the sub-committee requested that they be allowed to reconsider this list. This they have now done, and I will ask the Secretary of the sub-committee, Mr Kérisel, if he will introduce the report.

Before he does so, however, I would like to say that Mr Kérisel has personally done a great deal of work in this connection. Apparently, to produce a substantial list of agreed symbols is an impossibility. At first sight this may seem very strange, but it seems to be a subject with which one can become passionately involved, and I think we owe a great debt of gratitude to Mr Kérisel for having steered a very steady course through a very stormy sea, while this work has been going on.

Would you please speak, Mr Kérisel?

M. KÉRISEL (France) : Monsieur le Président, Messieurs, il peut sembler curieux, effectivement, que les passions aillent se situer dans la fixation de notations, mais je crois que notre président a eu raison de le rappeler : il a fallu un gros travail et beaucoup de diplomatie pour arriver à fixer 80 notations, que je vais en principe vous proposer, avec l'agrément de tous de réduire à 70 ou 71. Voyez l'épaisseur du dossier qui a été nécessaire à fixer ces notations.

Nous nous sommes réunis, sur la suggestion et avec l'autorisation du président, pour essayer d'aboutir à un agrément total sur un certain nombre de notations. J'ai l'honneur aujourd'hui de vous présenter le rapport final, qui consisterait à adopter ces 80 notations qui figuraient dans mon rapport écrit, moins 9, ou moins 10 notations sur lesquelles je vais vous donner des indications qui se référeront au rapport français, c'est-à-dire plus précisément à la liste des symboles recommandés en mécanique des sols.

Si vous voulez bien prendre cette liste des symboles, à la page 1 il n'y a pas de remarque, il s'agit simplement d'une question de principe. Elle vous indique, en effet, que nous avons voulu nous référer d'abord, en considérant que la mécanique des sols est une partie de la mécanique en général, au travail de l'I.S.O. (International Standards Organisation).

Vous trouverez dans les pages suivantes certaines notations suivies d'une astérisque, qui sont précisément celles sur lesquelles l'harmonisation s'est déjà faite au cours de très nombreuses séances qui réunissaient toutes les nations du monde à propos de Congrès de mécanique.

Page 2, aucune altération à la proposition qui vous a été faite par écrit.

Page 3, je vous propose de supprimer quatre notations, sinon cinq :

p'_o = pression verticale effective existant dans un sol au repos;
 p'_h = pression horizontale effective dans un sol au repos;
 p'_c = pression verticale de consolidation;
 p_k = pression de capillarité.

Pourquoi cette hécatombe sur les lettres « p » ? Ceci se réfère à la notation qui a été introduite dans la célèbre équation de Terzaghi sur le terme qui donne la pression limite sur une fondation profonde, et qui est, comme vous le savez, noté dans le livre de Terzaghi par $n_q \times q$, q étant la pression verticale donnée par les terrains au même niveau que la fondation, et n_q étant le facteur multiplicateur de cette pression « q ». Donc, dans ce traité, on désigne déjà par la lettre « q » la pression des terres, de sorte qu'apporter la notation « p » à cette pression des terres, c'était apporter aussi une certaine confusion.

Ainsi, sur la suggestion de la majorité des membres de la sous-commission, il a été jugé préférable de supprimer toutes les notations : p'_o , p'_h , p'_c , p_k . De même, je vous proposerai dans un instant de supprimer à la page 6 la notation « q » qui désignait la pression de contact sous la base de la fondation.

Il a été proposé également de supprimer la lettre « G » qui désigne la densité relative des grains solides, et qui est utilisée exclusivement dans les pays anglo-saxons — ou presque exclusivement — et qui n'est pas jugée nécessaire dans les pays qui calculent en système métrique, puisqu'il n'est pas nécessaire d'avoir ces notations lorsque la densité de l'eau est chiffrée par le chiffre 1. Néanmoins l'accord n'a pas pu se faire sur la suppression de cette lettre « G » et je vous propose de la conserver. Ainsi, en résumé, page 3 nous avons quatre notations supprimées.

Page 4, aucune notation n'est supprimée.

Page 5, une petite remarque sur le symbole μ . Nous avons pris μ ici pour désigner le coefficient de frottement, parce que c'est un terme qui a été adopté par l'I.S.O.; mais je supprime : « = $\text{tg } \phi'$ », car μ désigne le coefficient de frottement physique d'un corps sur un autre, par exemple le frottement d'une roche sur une autre. Or nous, nous parlons de frottement de milieux pulvérulents ce qui est autre chose. Donc, nous rappelons que μ est un coefficient de frottement, sans plus. C'est simplement une précision qui est apportée à ce symbole.

Je vous propose ici la suppression de trois notations :

H = hauteur du mur mesurée verticalement

car, en principe, lorsqu'on calcule les poussées et les butées, on introduit la longueur mesurée suivant le parement du mur, et non pas la hauteur verticale.

Dans le cadre de ce que je vous ai dit sur la notation « p », je vous propose la suppression de la lettre

p = contrainte normale sur l'écran dans l'état de poussée ou de butée ou dans un état intermédiaire

avec même l'alternative de la lettre « e ». L'unanimité des membres de la commission s'est ralliée à la suppression de cette lettre « p ».

Je vous propose également la suppression de :

C_a = adhésion, contrainte tangentielle sur l'écran quand $\delta = 0$.

Cette notation n'a pas rallié les suffrages.

Page 6, je vous ai dit que je vous proposais la suppression de :

q = pression de contact sous la base de la fondation, de façon à donner la liberté à ceux qui le désireront de continuer à employer la notation de Terzaghi : $q \times n_q$ « q » désignant à ce moment la pression des terrains et non pas la pression de contact sur la base de la fondation.

Je vous propose également de supprimer ρ = tassement (W et δ sont aussi utilisés) car beaucoup sont allergiques à la lettre ρ .

En résumé, nous avons devant nous une proposition d'adoption de 71 symboles. Vous pourrez dire : « C'est beaucoup » ou bien « C'est peu ». Je crois qu'il est extrêmement intéressant d'avoir 71 symboles, et 71 symboles seulement pour l'instant, qui fassent l'objet de l'unanimité des membres du Comité Exécutif et du Congrès international de mécanique des sols, car l'adoption de notations n'est pas une opération hautement intellectuelle. Elle peut déchaîner des passions, c'est une affaire entendue, mais avoir toujours les mêmes symboles qui désignent les mêmes choses évite de réfléchir et facilite la compréhension des textes.

J'ajoute un mot. Quel sera le devenir de cette tentative d'uniformisation des notations ? Est-ce que nous pouvons espérer dans l'avenir normaliser beaucoup d'autres symboles ? et est-ce souhaitable ?

Je pense que la force d'une liste de symboles réside dans le fait qu'il n'y en a pas un très grand nombre. Si l'on veut se souvenir d'un certain nombre de symboles, il ne faut pas qu'il y en ait 200 ou 300. Par conséquent je suis partisan, en ce qui me concerne tout au moins, en tant que rapporteur de cette sous-commission, de limiter le nombre des symboles.

Il serait désirable peut-être d'en normaliser encore une dizaine ou une vingtaine, au maximum, mais je crains qu'avec des positions assez durcies de la part de certains il soit difficile d'aller plus loin. Je pense donc, en ce qui me concerne, que le travail de la sous-commission dont j'ai été le secrétaire est terminé. (*Applaudissements.*)

LE PRÉSIDENT : Thank you very much Prof. Kérisel. Prof. Brinch Hansen wants to say a few words.

M. J. BRINCH HANSEN (Danemark) : As I have already told you, Mr Skempton, I could already at our meeting in London agree to most of the symbols in the list made up then, but I had some things I could not agree to and those are among the things that have been struck out, so I am in perfect agreement with Prof. Kérisel and the majority of our colleagues on the sub-committee to the list now proposed. Only I think that for my part I personally would consider it preferable to carry on the work of the sub-committee. In fact it was proposed yesterday at our meeting by Prof. Schultze, and I promised him I would repeat it here (and I think our Swedish colleague would agree) that it would be good at least to try and carry on the work in the four years until the next Conference. So I think if we took a vote in the sub-committee that a majority would propose that we go on.

M. PIETKOWSKI : Messieurs, je voudrais ici exposer quelques doutes, à propos du premier chapitre : « Généralités ».

Est-il nécessaire que notre Association normalise la lettre π et aussi la lettre « e » comme « base des logarithmes naturels » ?

Plus loin, je trouve, dans le chapitre « Consolidation à une dimension » :

T_p = facteur temps.

C'est une expression tellement spéciale qu'elle demandera toujours une explication dans le travail.

Dans le chapitre IV, je trouve :

K = coefficient sans dimension intervenant dans l'expression de p à utiliser avec différents indices comme ci-dessus.

Je me demande également si cela est nécessaire.

Enfin, dans les « Pentes », il y a des dénominations qui sont plutôt utilisées dans le domaine des routes. Est-ce déjà

normalisé chez les gens des routes ? Et est-ce que cela a été fait en accord avec eux ?

LE PRÉSIDENT : I think perhaps I might make a very small interjection at this point. I noticed that a few people were amused by the question, "Is it necessary to standardise the symbols for π and e ?". The answer is very definitely in the affirmative. Such people cannot have read various sections of the literature in which they will find the symbol π used in a very different sense from that normally used in Western Europe and America.

M. R.F. LEGGET (Canada) : May I hasten to reassure you, I have not come to oppose this report, even though I had to vote against it earlier, but to speak most strongly in favour of it and to venture to ask if you could consider a further suggestion made to me, very strongly, by some members attending this Conference. Without questioning any of the details of the splendid work done by the sub-committee, with the expert assistance of Prof. Kérisel, and without wishing upon Prof. Kérisel any more rough water or more difficulties, I want to support most strongly the suggestion already made that this committee should be continued. But, more than that, I hope its scope may be broadened. We have already heard discussion about the difficulty of communication one with another because of the various languages that we speak, but these difficulties are increased if we do not know exactly what we mean by the terms we are using in our own languages. Therefore, Mr Chairman, I can imagine no more important task for the International Society of Soil Mechanics and Foundation Engineering than to steadily and continuously work towards international agreement on the definitions of the terms we use and the precise listing of the equivalent terms in our respective languages.

I therefore wish to express the hope — it would be improper for me to go beyond that — that when the time comes for this Society to set up standing committees, a standing committee — indicating that it has a continuing job — should be this committee, and I hope that Prof. Kérisel will have his hand at the tiller for a long time, the committee having as its job not only the development of agreed-upon symbols and notations but, starting as soon as possible, agreed-upon definitions.

I am encouraged to offer this suggestion at this time since it will be four years before we meet again, in view of the fact that in North America, which is a very large place and in which there are very diverse views on every subject under the sun, two great societies have already jointly managed to reach reasonable agreement on a set of definitions in soil mechanics. I refer to the American Society of Civil Engineers and the American Society for Testing and Materials, and the North American list, far from perfect though it may be — and most certainly is — could perhaps form the basis of the next stage of the work of this committee, which I hope very much indeed we can see started at this meeting.

I hesitate to go further. I wanted to voice the hope that we can see this sub-committee continuing, and as it gets its scope, maybe, broadened, as soon as possible and as soon as may be convenient to include international definitions of what it is we are talking about one to another.

M. TSITOVITCH (U.R.S.S.) : Je me permets de faire une petite proposition. Avant tout, je voudrais noter qu'un travail vraiment important a été fait par ces deux sous-comités, et comme l'orateur précédent je suis d'avis d'approuver les rapports de ces deux sous-comités.

Mais faut-il adopter les dénominations indiquées dans les deux rapports de ces sous-comités ? Le premier parle de la littérature géophysique, tandis que le second parle des symboles dans la mécanique des sols. A mon avis, il faudrait que les deux sous-comités emploient les mêmes termes, et qu'ils

soient l'un et l'autre des sous-comités de la mécanique des sols.

Autre petite remarque; peut-être ai-je mal entendu : à la page 5 du rapport sur les symboles, il faut certainement remplacer le coefficient μ , puisque nous sommes déjà habitués à le considérer comme un « coefficient de Poisson », tandis que le coefficient de frottement est désigné par « f ». Je n'ai peut-être pas bien entendu la proposition du Prof. Kérisel sur le coefficient μ mais à mon avis il faut remplacer μ par « f ».

LE PRÉSIDENT : Perhaps I might make a general comment at this stage, namely, that even in such a comparatively short list as this, you will have noticed, we have to provide some alternatives. μ is used as a permissible alternative for the compression coefficient, but it is, of course, also very widely used as the coefficient of friction. There is no way out of problems of this kind.

M. J.G. ZEITLEN : Is the working of the Applied Mechanics International Society to be taken into account in such a thing as this ? It seems to me this has to fit into it.

M. J. KÉRISEL : I will give you the reference. The first page symbol, International Standards Organisation.

Les symboles marqués d'une astérisque sont ceux recommandés par l'I.S.O. dans son document ISO/TC 384 F (Grandeurs et Unités de mécanique). C'est très général.

M. J.K.T.L. NASH (Grande-Bretagne) : This is one of the first Committees I have ever come across that has produced an agreed report and still wants to continue with its work. It seems to me an astonishing thing. Prof. Legget's suggestion that its terms should be widened may then give it some extra work to do, but without that I can see little reason for its continuing. I wonder if Prof. Kérisel would comment on this ? Otherwise I would hope we should accept gratefully the work they have done, and leave it at that.

M. NASCIMENTO : Je suis d'accord pour un examen préliminaire du rapport du Comité, mais il me semble qu'il faut envisager une étude détaillée. Par exemple à Lisbonne cette question de normalisation fait l'objet d'une section spécialisée et ne me concerne pas. Il me semble par conséquent qu'il faut maintenir le Comité en activité et demander aux sociétés nationales quelques remarques, quelques avis sur les sujets; après quoi on réexaminerait les rapports, et les suggestions pour prendre une décision définitive, décision qui à mon avis devra être soumise à l'I.S.O.

LE PRÉSIDENT : Before we accept or reject this we must make one or two extremely minor corrections. On page 3 the symbol K_0 should be retained but originally it was defined merely as the ratio of two previous terms. As these have now been struck out it is obviously necessary to define K_0 in writing. This, of course, will be done.

Still on page 3 : the symbol G for the relative density of solid grains should be G_s . Is that correct ? At any rate, it avoids confusion with the modulus of rigidity.

M. KÉRISEL : Beaucoup de pays utilisent cette lettre sans indice.

LE PRÉSIDENT : Subject, then, only to those very minor points, the first proposition in this connection is whether we accept or whether we reject this report, or whether we ask the sub-committee to consider it again. I will propose that we accept this report, and I would ask those of you who agree with that proposal to put up their hands.
(*Proposition adoptée.*)

LE PRÉSIDENT : Thank you: *the report is accepted*, almost unanimously.

Notations et symboles

I. GÉNÉRALITÉS

$\pi = 3,1416$
 $e =$ base des logarithmes naturels 2,7183
 $\log_e a$ ou $\ln a$, logarithme naturel de a
 $\log_{10} a$ ou $\log a$, logarithme de a (base 10)
 t , temps
 g , accélération de la pesanteur
 V , volume
 W , poids*
 M , moment*
 F , facteur de sécurité

II. CONTRAINTES et DÉFORMATIONS RELATIVES ¹

u , pression interstitielle
 σ , contrainte normale*
 σ' , contrainte effective normale ($\bar{\sigma}$ est également utilisé)
 τ , contrainte tangentielle*
 ϵ , dilatation linéaire relative*
 γ , glissement unitaire ^{2*}
 ν , coefficient de Poisson* (μ est également utilisé*)
 E , module de déformation linéaire*

 G , module de déformation par glissement*
 K , module de déformation volumique sous pression hydrostatique*
 η , coefficient de viscosité* (rapport de la contrainte à la vitesse de déformation relative)

III. PROPRIÉTÉS DES SOLS

(a) Poids spécifiques

γ , poids spécifique du sol*
 γ_s , poids spécifique des grains solides
 γ_w , poids spécifique de l'eau
 γ_d , poids spécifique du sol sec
 γ' , poids spécifique du sol déjaugé

 G , densité relative des grains solides $G = \frac{\gamma_s}{\gamma_w}$

 e , indice des vides
 n , porosité
 w , teneur en eau
 S_r , degré de saturation

(b) Consistance

w_L , limite de liquidité
 w_P , limite de plasticité
 I_P , indice de plasticité
 w_S , limite de retrait

 I_L , indice de liquidité = $\frac{w - w_P}{I_P}$

 I_C , indice de consistance = $\frac{w_L - w}{I_P}$

 e_{\max} , indice des vides max.
 e_{\min} , indice des vides min.

 I_D , indice de densité = $\frac{e_{\max} - e}{e_{\max} - e_{\min}}$
 (D_r est aussi utilisé)

(c) Perméabilité

h , charge hydraulique ou potentiel

List of Symbols

I. GENERAL

$\pi = 3.1416$
 $e =$ base of natural logarithms 2.7183
 $\log_e a$ or $\ln a$, natural logarithm of a
 $\log_{10} a$ or $\log a$, logarithm of a to base 10
 t , time
 g , acceleration due to gravity
 V , volume
 W , weight*
 M , moment*
 F , factor of safety

II. STRESS and STRAIN ¹

u , pore pressure
 σ , normal stress*
 σ' , normal effective stress ($\bar{\sigma}$ is also used)
 τ , shear stress*
 ϵ , linear strain*
 γ , shear strain ^{2*}
 ν , Poisson's ratio* (μ is also used)
 E , modulus of linear deformation* (Young's modulus)

 G , modulus of shear deformation*
 K , modulus of compressibility*
 η , coefficient of viscosity*

SOIL PROPERTIES

(a) Unit weight

γ , unit weight of soil (bulk density)*
 γ_s , unit weight of solid particles
 γ_w , unit weight of water
 γ_d , unit dry weight of soil (dry density)
 γ' , unit weight of submerged soil

 G , specific gravity of solid particles $G = \frac{\gamma_s}{\gamma_w}$

 e , void ratio
 n , porosity
 w , water content
 S_r , degree of saturation

(b) Consistency

w_L , liquid limit
 w_P , plastic limit
 I_P , plasticity index
 w_S , shrinkage limit

 I_L , liquidity index = $\frac{w - w_P}{I_P}$

 I_C , consistency index = $\frac{w_L - w}{I_P}$

 e_{\max} , void ratio in loosest state
 e_{\min} , void ratio in densest state

 I_D , density index = $\frac{e_{\max} - e}{e_{\max} - e_{\min}}$
 (relative density D_r is also used)

(c) Permeability

h , hydraulic head or potential

q , débit
 v , vitesse
 i , gradient hydraulique
 k , coefficient de perméabilité
 j , force de filtration par unité de volume

q , rate of discharge
 v , velocity of flow
 i , hydraulic gradient
 k , coefficient of permeability
 j , seepage force per unit volume

(d) Consolidation à une dimension

m_v , coefficient de compressibilité = $-\frac{\Delta e}{(1+e)\Delta\sigma'}$
 C_c , indice de compression = $-\frac{\Delta e}{\Delta \log_{10} \sigma'}$
 c_v , coefficient de consolidation
 T_v , facteur temps $\frac{c_v t}{d^2}$ (d parcours de drainage)
 U , degré de consolidation

(d) Consolidation (one-dimensional)

m_v , coefficient of volume change = $\frac{-\Delta e}{(1+e)\Delta\sigma'}$
 C_c , compression index = $-\frac{\Delta e}{\Delta \log_{10} \sigma'}$
 c_v , coefficient of consolidation
 T_v , time factor = $\frac{c_v t}{d^2}$ (d , drainage path)
 U , degree of consolidation

(e) Cisaillement

τ_f , contrainte de cisaillement sur le plan de rupture
 c' , cohésion effective
 Φ' , angle de frottement effectif
 c_u , cohésion apparente
 Φ_u , angle de frottement apparent (en relation avec les contraintes totales)
 μ , coefficient de frottement*
 S_t , sensibilité

(e) Shear strength

τ_f , shear strength
 c' , effective cohesion intercept
 Φ' , effective angle of shearing resistance, or friction
 c_u , apparent cohesion
 Φ_u , apparent angle of shearing resistance, or friction
 μ , coefficient of friction*
 S_t , sensitivity

IV. POUSSÉE DES TERRES

d , distance depuis le sommet du mur jusqu'au point d'application de la pression
 δ , angle de la contrainte sur l'écran avec la normale à celui-ci
 K , coefficient sans dimension intervenant dans l'expression de la contrainte normale sur l'écran, à utiliser avec différents indices.
 K_0 , coefficient de pression au repos

IV. EARTH PRESSURE

d , distance from top of wall to point of application of pressure
 δ , angle of wall friction
 K , dimensionless coefficient to be used with various suffixes in expressions referring to normal stress on walls
 K_0 , coefficient of earth pressure at rest

V. FONDATIONS

B , largeur de la fondation
 L , longueur de la fondation
 D , profondeur de la fondation
 N , coefficient sans dimension exprimant avec un indice les effets respectifs du poids spécifiques, de la profondeur et de la cohésion, etc., dans l'expression de la pression limite sous la base
 k_s , module de réaction

V. FOUNDATIONS

B , breadth of foundation
 L , length of foundation
 D , depth of foundation beneath ground
 N , dimensionless coefficient used with a suffix applying to specific gravity, depth and cohesion, etc., in the formula for bearing capacity
 k_s , modulus of subgrade reaction

VI. PENTES

H , hauteur verticale du talus
 D , profondeur de la couche dure sous le pied de talus
 β , angle d'inclinaison du talus avec l'horizontale.

VI. SLOPES

H , vertical height of slope
 D , depth below toe of slope to hard stratum
 β , angle of slope to horizontal.

1. On ne suppose pas nécessairement qu'il y ait proportionnalité entre les contraintes et déformations.

2. S'il y a confusion possible avec la densité, se servir de $\epsilon_x, \epsilon_y, \epsilon_z$ pour les déformations normales et de $\epsilon_{xy}, \epsilon_{yz}, \epsilon_{zx}$ pour les déformations de cisaillement.

* Les symboles marqués d'une astérisque sont ceux recommandés par ailleurs par l'I.S.O. (International Standards Organization) dans son document ISO/TC 384 F (Grandeurs et Unités de mécanique) — Juillet 1960.

1. It is not necessarily assumed that there is proportionality between stresses and strains.

2. Where confusion with density may arise, use $\epsilon_x, \epsilon_y, \epsilon_z$ for normal strains and $\epsilon_{xy}, \epsilon_{yz}, \epsilon_{zx}$ for shear strains.

* Symbols marked with an asterisk are those agreed by I.S.O. No. 276 (July 1960).

LE PRÉSIDENT : Before leaving this question we should make a decision on two points: first, should this sub-committee continue its labours — and I use that word advisedly; and second, should its work be broadened as Mr Legget has suggested — namely, to include a list of definitions. Presumably that would be in several languages, Mr Legget?

M. LEGGET : Yes.

LE PRÉSIDENT : I think I am right in saying that a glossary of terms has already been produced by the Society. Perhaps we might make this second suggestion more concrete by proposing that the sub-committee be asked .. or that a committee be set up — to undertake the review of that glossary in the light of the newly agreed list of symbols. That at least would be a starting point.

It might be better if we took these two as separate items. Mr Nash, rather cogently, pointed out that it is very remarkable that we have got as far as we have, and might it not be asking almost too much to expect to get any further. Mr Kérisel indicated almost the same thought in his opening remarks. He suggested that we might get another 10, that there was a very slight chance of getting 20, and that it was virtually hopeless to expect to get 30, symbols now. In view of this — which I would say is a correct assessment of the situation — do we think it necessary to ask this sub-committee to continue its work on symbols ?

Those who think it is necessary, or desirable, to ask the sub-committee to continue its work on symbols, please put up your hands.

(Vote à mains levées indiquant une majorité pour que le Comité continue son travail).

LE PRÉSIDENT : But in this case I feel bound to point out that two of the people most concerned have voted against the proposal. I think that a mere numerical majority is not always the correct answer. One considers the term “ weighted average ” : I think Mr Kérisel's hand in this case is possibly worth about five hands from anyone else.

M. J.E. JENNINGS : I think we agree very largely with the idea — in voting — that the work of the sub-committee would be extended to definitions.

LE PRÉSIDENT : I was taking symbols, not the definitions.

M. JENNINGS : Agreed; but I think we had that idea at the back of our minds when we voted for it to be continued.

LE PRÉSIDENT : Before we make a final decision could I ask the Committee to give an indication of their feelings on the desirability of a committee — not necessarily this committee, which has already done a great deal of work — being set up to consider the question of an agreed list of definitions, which would, of course, be correlated with this list of symbols. Will those who are in favour of some work being carried out on definitions please put up their hands ?

(On procède au vote).

LE PRÉSIDENT : There is a *clear vote for that* — and I may say it included Mr Kérisel, now on the affirmative side.

We will therefore establish a committee to consider the drawing up of a list of agreed international definitions, and they should use as the basis for their considerations the glossary which has already been produced : and the definitions, of course, should be related to the list of symbols. Perhaps we might take note of the earlier vote there : that if during their deliberations on definitions the committee find themselves in a position to agree to a few more symbols, then these will be accepted with gratitude.

We must now set up this committee. Mr Kérisel, would you be prepared to sit on a committee dealing with definitions ?

M. KÉRISEL : Yes.

LE PRÉSIDENT : I am extremely grateful to you. I think the whole Executive Committee must express its thanks... *(applause)*... as indeed it has done.

M. KÉRISEL : I want to be replaced in the other committee.

LE PRÉSIDENT : I understand, and we have already agreed. Would you care to suggest someone to replace you on the Geotechnical committee ?

M. KÉRISEL : A la condition d'être remplacé au comité de littérature de la géotechnique, car je fais partie des deux comités, et je voudrais me décharger.

LE PRÉSIDENT : As Mr Kérisel is willing to serve in connection with definitions, may I ask the other members of the symbols committee whether they would be willing to direct their attention to definitions — that is to say, those of them who happen to be here ? Prof. Schultze is not here...

M. BRINCH HANSEN : I think Prof. Schultze will say yes.

LE PRÉSIDENT : Then the list will be : Mr Kérisel, Prof. Fadum, Dr Bishop, Mr Jakobson, Dr Schultze, Prof. Brinch Hansen. Is the Committee in favour of asking those gentlemen to continue ? *(Agreed).*

M. BRINCH HANSEN : Did you mean continue with symbols ?

LE PRÉSIDENT : No, on the definitions.

M. BRINCH HANSEN : Did we not have a vote on this and the majority asked us to continue on definitions too ?

LE PRÉSIDENT : This committee is being set up primarily to draw up an agreed international list of definitions. I think we agreed that if they told us that, during their deliberations, they had found they could agree on a few more symbols we would be very pleased, but we are not necessarily insisting on this.

M. KÉRISEL : Monsieur le Président, je vous remercie infiniment de la confiance que vous me faites, ainsi que tous les membres du Comité Exécutif.

J'ai bien compris la mission que vous désirez nous confier, c'est-à-dire que nous fixions d'abord notre attention sur la question des définitions, et si cela est possible nous ajouterons quelques autres symboles, chemin faisant.

Dans la composition de la commission, je crois qu'il serait absolument indispensable d'ajouter un représentant de l'U.R.S.S. car j'ai pu constater, au cours de mon récent voyage en U.R.S.S., d'abord qu'on y publie beaucoup de littérature sur la mécanique des sols, et que quelquefois les définitions ne sont pas les mêmes.

Ainsi, je m'adresse à M. Tsitovitch : comme vous produisez beaucoup en U.R.S.S. je pense qu'il serait bon d'avoir parmi nous un représentant de votre pays.

LE PRÉSIDENT : I think this is a good suggestion. I would propose Mr Ter-Stepanian. Before doing so I would ask Mr Tsitovitch if he agrees with that suggestion.

M. TSITOVITCH : Je suis d'accord avec cette proposition d'introduire un représentant de l'Union Soviétique dans le comité.

LE PRÉSIDENT : In general, yes. May we leave it, then, that a name will be given to the Secretary ?

M. TSITOVITCH : Nous donnerons le nom dans les jours qui viennent, ou même demain. Je remercie le Comité.

La composition du sous-comité chargé des définitions des termes de Mécanique des Sols a été confirmée comme suit :

J. KERISEL, France (Animateur);
A. W. BISHOP, U.K.;
R.E. FADUM, U.S.A.;
J. BRINCH HANSEN, Denmark;
B.J. JAKOBSON, Sweden;
E. Schultze, Germany;
G. TER-STEPANIAN, U.S.S.R.

M. BRINCH HANSEN : I have promised Prof. Tschebotarioff to put a proposal of his before the Executive Committee. Prof. Tschebotarioff finds that there is one other field in which it would be useful to have an international sub-committee and that is on the question of factor of safety in soil mechanics. His proposal (which I would support very strongly) is that such a sub-committee should be chosen, to have the job of coming forward with a proposal for the best way to introduce safety factors in our calculations. It could be a separate committee; it might also be that the existing sub-committee on the things we have just talked about could take on this job too.

LE PRÉSIDENT : We have a proposal, in the form of an interjection, that another committee should be set up, to consider factors of safety. The mathematical form in which they should be defined, I take it ? One could say at once that this is quite outside the terms of reference of the definitions, as we used the word in discussing the earlier committee.

I do not believe that members of the Executive Committee have had long enough to consider this suggestion. It is rather an important point of principle as to whether one can have committees on matters of this kind or whether those are problems which should be allowed to solve themselves by usage. I am not sure that you can dictate matters of this kind.

M. J.K.T.L. NASH : Could we defer this to the next meeting ?

LE PRÉSIDENT : I think at least it must be delayed for the time being; we have still quite a large number of items to consider which we have had before us since the beginning of our deliberations.

Point 7 — Rapport du sous-comité chargé des méthodes d'essais de pénétration statiques et dynamiques

LE PRÉSIDENT : Prof. Vargas will speak on this.

M. M. VARGAS (Brésil) : As you all know, at the last Conference, in London, a Sub-Committee on Dynamic and Static Penetration Test Methods was organised, and I had to act as Secretary of that sub-committee. I have to say that my reports were submitted on the work done in Argentina, Brazil, Germany, Sweden and the U.S.A., and there was a report from Prof. Geuze covering dynamic and static penetration tests in Western Europe in general. These reports covered generally the practice of standard penetration tests in both North and South America and of the penetration devices used in Europe; also they covered correlation between several methods.

But, unfortunately, all this gathering of data was not very successful, because we could see that the reports indicate that the standard penetration test, for instance, is extensively used in North and South America but it is far from being standardised. There are several dimensions used in the sample and several different methods used in the several countries. In Europe the number of devices is greater than in America but there is already a tendency to standardise the methods. An example of that tendency is shown mainly in Germany where the studies for standardisation are further advanced than in the other countries.

So there are many differences of opinion regarding inter-

pretation of test results, both the static and the dynamic. Because of this the sub-committee believes that there is a need for standardisation of the principal test procedures so that whatever correlation may exist between penetration, resistance and soil property may be interpreted more universally.

The sub-committee could not agree on any recommendation at present, except to suggest that the work of the sub-committee be continued with the aim of standardisation -- I mean standardising the procedure -- for a more commonly accepted penetration test method. I could mention the standard penetration test, the Dutch cone and the German hamson. However, at least two or three of the reports presented I considered of great value. I can mention here the report presented by the United States National Committee and the report presented by Dr Geuze covering the procedure used in Western Europe.

So the sub-committee would suggest that provision should be made for the publication of this report in the proceedings of the Conference -- at least these two reports I have mentioned. The publication of these two reports would serve as a basis for a further investigation on the standardisation of penetration test methods.

LE PRÉSIDENT : As you will see, what emerges is that the standard penetration test is not standardised, and the sub-committee recommendation is that they should continue to work with the object of producing a standardised standard test.

I would like to know whether the Executive Committee, first of all, is in favour of the idea that the dynamic penetration test should be standardised. (*No one opposes.*)

Now we come to the other tests, the Dutch test and the German test. Are these tests of a kind which ought to be standardised, or not? This is not quite so evident.

M. C. VAN DER VEEN (Hollande) : This morning we had the Technical Section 2, in which this point was discussed to a large extent, and I think the position is this: that most members are inclined to standardise, but not to one single type. I mean to say that there is a possibility to have a limited number of cone penetration equipments which can be used in different circumstances, so if we did so strictly standardise that there was only one apparatus I am afraid it would only be suited to one type of soil.

LE PRÉSIDENT : If we regard our interpretation of those remarks in the sense used by our General Reporter (that is to say, a limited number of cone penetrometers being standardised), is anybody against standardisation?

(*No one is against.*)

The sub-committee now has clear terms of reference. It has itself expressed the desire to continue its work. We therefore agree it should continue its work on those terms.

Point 8 — Résolution au sujet des langues

LE PRÉSIDENT : We come to the question of languages. It was left to the Secretary and myself to produce a resolution with which the Committee could either agree or disagree today. This resolution has been drawn up and circulated; it is a very brief one. We have tried to express the majority feelings of the Executive Committee as closely as possible. You will see that there are two points: first, that there should be one additional language used in the summaries of the printed papers. We thought that the most fair interpretation of this would be that the nature of this additional language should be essentially a matter of choice by the host country. For example, we imagined a situation in which the International Conference might be held in Madrid. It would seem perfectly logical in that case that if we were to have three

summaries the third should be in Spanish. If it were to be held in Russia it would obviously be in Russian.

As a matter of interest we looked into the question of printing the summaries in four or five languages. You may be surprised to know that this would involve another volume — not quite as long as our present ones but a volume as long as one of those of the London Conference. So this is no mean recommendation, and it can, I think, only be in the form of a suggestion that the country holding the next Conference should bear in mind.

The second point, which I think almost everybody was very sympathetic towards, was that one should be allowed to speak in more languages than English and French, and in particular to speak in the language of the host country and also in German, Russian or Spanish — obviously, in addition to French and English; French and English being used as the “back translation” languages. We are not going to be required to have translators from Russian into Spanish, for example, but from those five languages into either English or French.

Here, again, the financial implications are very considerable. The cost of three extra languages amounts to approximately £ 1,000. In view of this fact, we can only pass this as a recommendation. I would not agree that this be put to the vote in the form of an instruction to the next country that is going to hold a Conference.

In terms of a recommendation, are you in agreement with this resolution or not?

M. J. K. T. L. NASH : Might I suggest a small amendment? Is it too late?

LE PRÉSIDENT : I think strictly speaking it is; but if it is very small...

M. NASH : It is very, very small. With regard to the first suggestion, that this additional language should be chosen by the host country “in the light of potential attendance” — I am not sure that that should be in. They may care to choose another language, and I feel we should leave it to them and not tie them.

LE PRÉSIDENT : I think that a sensible suggestion. I propose we remove the words “in the light of potential attendance” — I was never happy about them from a purely linguistic point of view. Mr Nash has pointed out that they do not make much sense in any case. Subject to that amendment, I take it everybody agrees with this? (*Résolution adoptée.*)

Resolution on languages adopted :

The Executive Committee recommended to the organizers of the Sixth Conference that it would be advantageous if additional languages be introduced in the following manner:

(a) The summaries of the papers published in the volumes of the Proceedings be printed in English, French and one additional language. This additional language is to be chosen by the host country.

(b) During the oral discussions at the technical sessions speakers may use the language of the host country or German, or Russian or Spanish, in addition to the official languages of English and French. The translations, however, will be into English and French only.

These recommendations are subject to the host country's finding them to be practicable, both technically and financially.

LE SECRÉTAIRE : At the first meeting of the Executive Committee I mentioned that some papers had been sent from London for distribution to the Executive Committee but were delayed in the post. They have now arrived, and

Miss Lloyd is distributing them. There is a copy for every representative of a country and a copy for the Vice-Presidents.

M. N. TSITOVITCH : I want to speak on languages — the point of languages for the Sixth Conference.

LE PRÉSIDENT : The resolution on languages has been voted on and agreed unanimously.

M. TSITOVITCH : Il me semble que la question de la langue à adopter pour les résumés est liée à la ville choisie pour la prochaine conférence. Cette question pourrait être réglée dès maintenant. En effet, si le pays dans lequel se tiendra la prochaine conférence est de langue française ou anglaise, on pourrait dès aujourd'hui déterminer la langue à adopter pour les résumés.

Nous serions très heureux si le prochain congrès se tenait en U.R.S.S. mais nous ne le savons pas encore. S'il s'agit d'un pays qui n'est pas de langue russe, alors les pays de langue russe, ou qui en sont proches, verront encore reculer le moment où ils pourront lire les résumés dans une langue qu'ils connaissent.

C'est pourquoi je me suis permis de lier les deux questions, celle de la langue et celle du lieu du prochain Congrès. Notre délégation serait très heureuse et souhaiterait vivement que pour le prochain Congrès les résumés des documents présentés soient faits également en russe.

LE PRÉSIDENT : The position regarding languages is quite clear: we are leaving the choice of the additional language (and indeed the question as to whether there can be an additional language) to the country in which the next Conference is to be held.

Point 10 — Résolution soumise par la société nationale Australienne

LE PRÉSIDENT : Now we come to a proposal by the Australian Society, which may be summarised as follows: that a committee should be established to investigate the problems and practices of soil sampling.

At our last meeting, in London, exactly this proposal was made. Moreover, a list of members was proposed. Nevertheless the setting-up of this committee was not finally agreed. However a number of people, who cannot be described as a committee, have with a certain amount of enthusiasm pursued this topic; and quite a considerable amount of work has been done — naturally, on an unofficial basis.

Australia is now making a formal proposal that this work should be regularised; and I ask if the Committee is in favour of having a committee on soil sampling?

LE PRÉSIDENT : This proposal was received by the Secretary in two or three different forms, because Mr Aitchison was not clear on the point at which it should be introduced into the Executive Committee's deliberations. The sentence I read out is the proposal: “That a committee be formed to investigate the problems and practices of soil sampling”. (*On procède au vote à mains levées et la proposition visant à la formation du Comité est adoptée.*)

LE PRÉSIDENT : Now, regarding the membership of the Committee, have you any concrete suggestions to make on this point, Mr Aitchison?

M. G. D. AITCHISON : Yes, very briefly. Most of this work has been the consequence of the enthusiasm of Mr Kallstenius of Sweden, and the unofficial committee feel quite definitely that he should continue in the capacity of chairman of the committee; and rather than go into a great deal of detail we would prefer it at this stage if we could nominate

Mr Kallstenius as Chairman and allow him to select a full committee. The practice so far has been that of having a representative from each country and so the committee, in effect, is a very big one, and it may take some time to sort it out; but so far as we are concerned this unofficial committee would be very happy if we could leave the formation of the committee in the hands of Mr Kallstenius. Would that be in order, Mr Chairman?

LE PRÉSIDENT : You have heard the suggestion, that Mr Kallstenius be asked to act as Chairman, and I think that this is a very correct suggestion. There should be a representative from the United States, and I would suggest either Mr Lowe or Prof. Osterberg. Would the representative of the United States care to speak on this point?

M. T. LEPS (États-Unis) : Prof. Osterberg is now chairman of a task committee that we now have, due to report to us shortly on sampling. I would suggest that he be our No. 1 nominee.

LE PRÉSIDENT : I think there should be a representative from Australasia; would Dr Aitchison be acceptable? (*Proposition adoptée.*)

I believe Dr Aitchison would like a representative from Japan. In that case, I notice that Prof. Fukuoka has been working with you...

M. T. MOGAMI (Japon) : The Chairman of our Society is Dr Fukuoka, and I brought a message to this Committee that in such a case he wanted to express agreement.

LE PRÉSIDENT : Is he acceptable? (*Proposition adoptée.*)

LE PRÉSIDENT : It seems to me that Dr Hvorslev is in a special category in this subject — one might say in a class of his own. Perhaps he would not want to be on the committee, but it would be most desirable that the committee should be able to seek his advice. Would that be acceptable?

M. G. D. AITCHISON : As I understand it, Dr Hvorslev does not want to take any part in the committee, but we would be very happy to regard him as our principal adviser.

LE PRÉSIDENT : So we have Dr Hvorslev, principal adviser — I do not think there can be any question of asking whether people would approve of that. So that is a committee of four, with Dr Hvorslev an adviser. We could give you power to co-opt one extra member if you think it desirable; but as I understand it, there are about 15 people with whom you are in correspondence. This committee serves chiefly as a sort of executive, so there is no point, as I see it, in increasing the numbers.

M. G. D. AITCHISON : That is correct.

LE PRÉSIDENT : The Australian Committee have therefore put the proposal that a committee be formed on the problems and practices of soil sampling. This has been agreed, and moreover we have agreed the constitution of the committee, as follows:

Sous-Comité des prélèvements d'échantillons du sol :

Animateur :	T. Kallstenius	Sweden
	G. D. Aitchison	Australia
	M. Fukuoka	Japan
	J. D. Osterberg	U.S.A.
	with M. J. Hvorslev (U.S.A.)	as special adviser. (<i>Proposition adoptée.</i>)

Point 11 — Date et siège du 6^e Congrès

LE PRÉSIDENT : Now the extremely important question of the date and place of the next Conference. We have received two letters of invitation, and I will ask the Secretary to read these.

LE SECRÉTAIRE : This is a letter from the National Research Council of Canada. (*The Secretary read the letter dated 21 June 1961 from B. G. Ballard, Vice-President of the National Research Council of Canada.*)

LE PRÉSIDENT : Before we go any further we should thank the Canadian Society very much indeed for this invitation.

LE SECRÉTAIRE : The second letter is from the Indian National Society of Soil Mechanics and Foundation Engineering. (*The Secretary read the letter dated 15 June 1961 from Mr Vaidyanathan.*)

LE PRÉSIDENT : I think Dr Rao would consider the reading of that letter as equivalent to his formal invitation. We would like to thank the Indian Society for their very generous invitation.

Now we have, as you see, two invitations; and I may say that both of these arrived, as was necessary, before the beginning of this Conference. I will put the matter to the vote, but in this case it would be better if we were to write down our preferences. I would remind you that in matters of this kind each Vice-President has a vote and each country has one vote. (*On procède au vote.*)

Well, gentlemen, the vote is for Canada. Perhaps Mr Legget would like to speak?

M. R. F. LEGGET : Thank you very much for giving me the opportunity of saying two things.

First, on behalf of all my fellow-workers in the field of soil mechanics in Canada and on behalf of the National Committee itself I would like to express to you, Sir, and to the Executive Committee our thanks for the honour you have done us in accepting our invitation and to assure you that we shall do everything we possibly can to make it a good meeting — although we cannot possibly emulate all that Paris has to offer, even though we do suggest having the meeting in the second-largest French-speaking city in the world, after Paris. So the atmosphere in regard to language will be not too different from that of this pleasant and charming city.

Secondly, I would like to say to Dr Rao, and through him to our personal friends in India, that I feel embarrassed and sorry that a vote had to be taken between two countries which I know so well. May I add that I know so much about what is done in soil mechanics that I hope the day will come before too long when an invitation from India will not only be received but will be accepted, so that we can see what soil mechanics are like on the other side of the world. I say this, Dr Rao, with very real feeling, because you know from our own talks that I have been privileged to see what has been done in your country.

We shall look forward to doing our best, with the help, may I say, of all members.

LE PRÉSIDENT : Thank you very much, Mr Legget. I would like to endorse the latter part of your remarks. I feel that although it is not within the power of either myself or the Executive Committee to give any ruling as to where the next-but-one Conference should be, I have no doubt that a gross injustice would be done if that meeting were not to be held either in India or Australia, or somewhere in that part of the world. There have now been four Conferences in Europe — Rotterdam, Zurich, London, Paris — the first one was in Cambridge (Mass.) and the next one, we now know, will be in Canada. In other words, two in North America and four in Europe. The next one, I think, clearly must go to the East — if the Australians do not object to my using the word "East" in that connection.

I think Dr Rao would like to say something.

M. K. L. RAO : I wanted to have an opportunity to explain why India wanted to invite the Conference, but I had not the opportunity. Anyway, I want to congratulate Mr Legget

and our Canadian friends for giving us the opportunity to go and see them in Canada, to see the wonderful work they are doing and their beautiful country. So I very heartily congratulate our Canadian friends on getting Canada elected as the next place for our Conference.

At the same time I must be fair to myself in expressing the very great disappointment that our country feels that Asia and the Eastern countries are not to be allowed to have at least one meeting. The International Conference on Large Dams did realise that, and had its fourth meeting in Delhi. We felt that this Conference was intending to rectify the position and to bring soil mechanics forward in countries where it is not everywhere; but it seems to be the other way.

My friends advised me that "there will be very few votes for India" but — perhaps I should not speak like this — still, as we are a democratic nation of 400 million, I wanted to show this, and that is why I persisted in asking for a vote.

I wanted to say that in India, though its financial circumstances are different from those of the country of this or other Conference, the subject of soil mechanics, you can rest assured, is receiving extreme attention, in view of the fact that we have very high development and are constructing a large number of earth structures of various types, not only dams. Therefore soil mechanics is an extremely practical field.

I am most thankful to hear what you said, Mr President, about a future Conference being in the East, including Australia. I hope that in the event that Australia gets the selection our friends will at least stop in India and see our work.

M. J. BRINCH HANSEN : Now that it has been decided that the next Conference should take place in Canada I want to give my support to Prof. Tsitovitch in the matter of languages. Canada already has the two languages that are allowed in our Proceedings, so I can see no logical reason at all why Canada should decide whether the third language should be Russian, Spanish or German. In these circumstances I think it is the Executive Committee that should decide which the third language should be.

LE PRÉSIDENT : I would remind you that the organisation of the Conference is entirely in the hands of the host country.

M. R. F. LEGGET : Naturally I have no authority to give a firm answer today with regard to the third language to be used for the abstracts of papers, but with the authority of my colleagues here and with the knowledge I have of the Canadian organisers I feel I can give every reasonable assurance, Mr Chairman, that the abstracts of the papers for the Sixth Conference will be printed in three languages — the two of my own country and the language of the U.S.S.R.

LE PRÉSIDENT : I am glad to see that this proposal finds wide acceptance.

Point 12 — Nomination des membres du bureau de la Société Internationale

(a) *President:*

LE PRÉSIDENT : It has been questioned as to whether the Presidency should from now on rotate, so to speak, conference by conference, or whether it should continue for more than one session.

I do not know that I can make any general pronouncement on this question, but my own feeling is perfectly clear, namely that I feel that Terzaghi was quite unique so far as this subject is concerned and we all wanted him to continue as President so long as he was able. I do not think that this reasoning applies to anyone else, and I am certain it does not apply to myself. Therefore I have never had any intention of doing anything but retire at the end of this meeting in Paris; and consequently, of course, of proposing my successor.

I am extremely glad to say that I have spoken to Prof. Casagrande and he is prepared to accept the office of President. I therefore am able to propose Prof. Arthur Casagrande as the next President. There are no other nominations and so.

Prof. Casagrande is elected.

(b) *Vice-Presidents: (i) Europe.*

By custom we take Europe first — you will see a list on the agenda, (i) to (vi), and a list of names.

Perhaps I may be allowed to speak for myself in this connection; I wish to withdraw. I have been the Vice-President for Europe and I think in general, though not as an inflexible rule, these offices should circulate. I think Mr Mayer wishes to say something?

M. A. MAYER (France) : Je suis tout à fait de l'avis du Président Skempton. Ce n'est pas moi qui ai demandé l'inscription sur cette liste, et je demande que mon nom soit rayé.

LE PRÉSIDENT : Mr Mayer finds himself in the same position as I do — that is, he wishes his name to be withdrawn from this list. It may seem a little odd, but you must realise that anybody can propose an individual as vice-president, and once a proposal has been made the name appears. We merely are not accepting our proposals.

I think it would be better to have the names written on the board. I would remind you that only people from Europe itself, plus the Vice-Presidents, can vote. (*On procède au vote.*)

M. Bjerrum est élu Vice-Président pour l'Europe.

(ii) *Asia (On procède au vote.)*

LE PRÉSIDENT : In the case of Asia there is a dead heat. I think I am in the position of being able to make a casting vote; and I give this to Dr Rao.

M. Rao est élu Vice-Président pour l'Asie.

(iii) *Africa.*

(*Vote.*)

Mr Mitchell est élu Vice-Président pour l'Afrique.

(iv) *North America.*

(*Pas de vote.*)

Mr Zeevaert est élu Vice-Président pour l'Amérique du Nord.

(v) *South America (Vote.)*

(*Vote.*)

Mr Da Costa Nunes est élu Vice-Président pour l'Amérique du Sud.

(vi) *Australasia*

(*Pas de vote.*)

Mr Birrel est élu Vice-Président pour l'Australie.

Point 13 — Questions diverses

LE PRÉSIDENT : That concludes our formal business. If there are any points of other business a note of these would be very welcome in our office, Room 376, so that we can judge the time to allow for our next meeting.

LE SECRÉTAIRE : I would be grateful if the members of the Executive Committee who have items would let us have them fairly soon, to give us a chance of duplicating. The duplicating service is very overloaded, and we have to take our turn.

LE PRÉSIDENT : The meeting is now adjourned until Saturday.

La séance fut levée à 18 h. 35.

TROISIÈME SÉANCE

Samedi 22 juillet 1961, à 15 h.

Le professeur A.W. SKEMPTON, F.R.S. assure la présidence de la séance.

LE PRÉSIDENT : We have to finish at four o'clock. The closing session commences at that time, and the representative of the Minister of Public Works will be with us, and we, of course, do not wish to keep him waiting. There are a large number of items to consider. I think many of them can be dealt with very briefly. Nevertheless it may be possible that we cannot reach the end of the agenda, in which case I am afraid that the last one or two points may have to be left.

Point 1 — Secrétariat

LE PRÉSIDENT : First, I would like to announce that our new President, Prof. Casagrande, has intimated that he is happy to accept the invitation from the Institution of Civil Engineers in London to continue providing the Secretariat. In effect this means that we may expect to have the services of Mr Banister for a further period. I think you will all welcome this. I shall say a little more about this in the closing session.

Point 2 — Communications à soumettre au prochain Congrès et assistance à celui-ci

LE PRÉSIDENT : I would like to make some remarks concerning the papers and our proceedings, and also something about attendance at the next meeting. I think all of us by now must have seen the two volumes of papers which the French organising committee have produced. You will also have noticed that these are very large. This is the result of two things : firstly, very few countries were willing to confine the number of papers submitted to the quota laid down by the French committee; and secondly, a very considerable number of authors were unwilling to confine the length of their papers to the length suggested by the French committee. Moreover, after some correspondence with the individual authors, no satisfactory reduction in length could be obtained by the French committee.

Now in my opinion the French National Committee have been unduly generous in this respect. We are, of course, grateful to them for the great amount of work which they have done; but the fact remains that the proceedings are very lengthy and very costly, and very heavy. There is one paper that has come to my notice which is 14 pages long, whereas the French committee requested (I think) four pages, this being the average length of papers in the London Conference.

Now if I had anything to do with the Editorial Board I would not have had the slightest hesitation in rejecting a paper of 14 pages. I would also have had no doubt that any paper of six or seven pages should be rejected. It is unfair to everybody, without exception, to write these very long papers and then refuse to withdraw them. I am speaking very strongly on this point because one can see that this tendency can grow, and our Canadian colleagues may find themselves in a still more difficult position.

I am not in a position to lay down the law about this. But in so far as I can help I will try to do so, by saying to the Canadian committee that I am sure they would have the full backing of the Executive Committee if they were to be very firm indeed about this question of number of papers from the countries and the length of papers by the authors. It is, after all, perfectly simple to confine one's remarks to a reasonable length or to choose a subject which will be in conformity with the given length of papers, which is four or five pages.. (*Applaudissements*).

M. A. MAYER (France) : Je dois dire, Monsieur le Président, que théoriquement vos observations sont marquées au coin du plus juste bon sens. Pratiquement, c'est extrêmement difficile, à moins de se brouiller avec la moitié des auteurs et des comités nationaux, de faire appliquer d'une façon rigide des règles comme celles-là.

Je n'ai pas à la mémoire le papier de 14 pages que vous nous citez, mais je peux vous dire que nous avons eu des bibliographies de deux pages et demie que nous avons renvoyées à leurs auteurs en leur disant : « Gardez une dizaine de noms au maximum ». Ils s'y sont refusés. Ce n'est pas que nous n'ayons pas essayé de réduire, mais nous nous sommes trouvés devant un certain nombre de gens qui estiment que les règles s'appliquent à tout le monde sauf à eux.

LE PRÉSIDENT : I quite realise that this is a very difficult question, but nevertheless I hope that perhaps from what I have said, and above all from the response to my remarks by the Executive Committee, the Canadians will feel encouraged to be much firmer.

Point 3 — Date de Conférences Régionales

LE PRÉSIDENT : This is merely a matter of asking any region which is thinking of holding a conference to get in touch with the Secretary very well in advance, in order that any danger of clashing of dates may be avoided. This is perfectly obvious, but nevertheless we think it is a point worth making.

Point 4 — Proposition de M. Kérisel

M. KÉRISEL (France) : Mes chers collègues, un certain nombre d'entre vous m'ont prié, en tant que délégué du pays invitant, d'exprimer à notre président sortant toute leur reconnaissance sincère pour la tâche qu'il a brillamment accomplie pendant ce Congrès de Paris. Il a présidé nos débats avec la distinction, l'autorité et la compétence qui le caractérisent.

Je crois que nous serions tous désolés si, par la suite, il ne participait plus aux débats du Comité Exécutif.

Le Président Skempton estime qu'il ne saurait accepter d'être nommé président honoraire, car il pense que cette distinction ne peut être réservée qu'à notre ancien président,

le Prof. Terzaghi. Tout au moins accepterait-il d'être nommé ancien président.

L'amendement qui vous a été distribué a pour but, d'une part de lui permettre, ainsi qu'à notre président honoraire, de siéger au Comité Exécutif. D'autre part il prévoit que la nomination du président est faite par le président sortant, le président honoraire et le ou les anciens présidents.

Si cet amendement recevait notre agrément, il serait proposé de l'approuver, et d'autre part de décerner au Prof. Skempton le titre d'ancien président. (*Applaudissements*).

M. K.L. RAO (Inde) : I second the proposal.

LE PRÉSIDENT : Before asking you whether you agree, I would like to thank Mr Kérisel very much indeed for his remarks.

He has two proposals, which we ought perhaps, formally, to take separately. The first is that the Executive Committee should be composed of the President (as, of course, we have had before) and also of the Honorary President (which, you will notice, is in the singular, because we consider that at any one time there can only be one Honorary President) and any Past President who may happen to be alive. This is the first proposal : may I ask you to approve or disapprove of that ?

(*Proposition adoptée*).

His second proposal is that the choice of President should be made by the existing President, by the Honorary President and the Past Presidents. The analogy here is with the College of Cardinals choosing the Pope. Whether you agree with this I am not sure — would you indicate ?

(*Proposition adoptée*).

M. J.G. ZEITLEN (Israël) : If I may suggest an amendment, I think the President is *nominated* by the outgoing President, the Honorary President and the Past Presidents and *approved* by the Executive Committee.

LE PRÉSIDENT : I think the word "nominated" is right. The French translation would not require alteration.

M. R. PIETKOWSKI (Pologne) : I would ask, what is the reason for changing paragraph (10) in such a manner ? The President elected as formerly had a much stronger position in comparison with a President elected only by five members, or so.

LE PRÉSIDENT : The point, I think, has been covered by the perfectly correct amendment which has just come from Israel. We are suggesting that the President be nominated. He is nominated by these individuals : his election is, of course, confirmed by the Executive Committee.

M. O. MORETTO (Argentine) : There is a doubt in my mind — what would happen if some time the nomination were not approved by the Vice-Presidents ?

LE PRÉSIDENT : Perhaps I would not be letting too many secrets emerge if I were to mention that the question of the Presidency is very fully discussed before the Executive Committee meeting, and I think it is unlikely that the situation you envisage would arise.

M. MORETTO : I was just raising the point to see whether any wording could be found to avoid any such thing — without changing it essentially, of course.

LE PRÉSIDENT : The Secretary, from his vast experience, thinks that this clause is sufficiently flexible to cover any given case. Could we leave it there, and if something is encountered in the future we can amend our Statutes, which we are perfectly entitled to do ?

(*Proposition adoptée*).

LE PRÉSIDENT : Mr Kérisel's third proposal was that I should become a Past President — for which I am extremely obliged to you.

M. KÉRISEL : It is a time effect.

LE PRÉSIDENT : One might say an ageing effect.

M. A. MAYER : Je m'excuse, mais dans le texte français il y a une phrase disant que les Vice-Présidents sont rééligibles, ce qui ne figure pas dans le texte anglais.

LE SECRÉTAIRE : In the English, "eligible for re-election". We must insert that.

LE PRÉSIDENT : May we have this clear: it is correct in the French; it has been omitted from the English text; it will be inserted in the English text.

The following Statute, including the revision of Statute 10, were then adopted by vote.

The representatives of Svenska Geotekniska Foreningen dissented.

I. NOM, BUT, SIÈGE ET LANGUES OFFICIELLES DE LA SOCIÉTÉ

1^o Le nom de la Société est Société Internationale de mécanique des sols et des travaux de fondations; en anglais : International Society of Soil Mechanics and Foundation Engineering.

2^o Le but de la Société est de promouvoir une collaboration internationale entre les savants et les ingénieurs, dans le domaine de la mécanique des sols et de ses applications.

Pour assurer cette collaboration, la Société Internationale :

- (a) organise périodiquement des Congrès Internationaux;
- (b) crée des Commissions permanentes d'étude;
- (c) publie une liste de ses membres tous les deux ans;
- (d) encourage la publication de résumés.

3^o Les langues officielles de la Société sont l'anglais et le français.

I. NAME, AIM, HEADQUARTERS and OFFICIAL LANGUAGES of the SOCIETY

(1) The name of the Society is: International Society of Soil Mechanics and Foundation Engineering; in French: Société Internationale de mécanique des sols et des travaux de fondations.

(2) The aim of the Society is the promotion of international co-operation among scientists and engineers in the field of soil mechanics and its practical applications.

The International Society ensures this co-operation by:

- (a) periodically holding International Conferences;
- (b) creating permanent Research Committees;
- (c) publishing a List of Members every two years;
- (d) promoting the publication of abstracts.

(3) The official languages of the Society are English and French.

II. MEMBRES, ORGANISATIONS NATIONALES, COTISATIONS

4° La Société Internationale est composée de Sociétés Nationales. Les Sociétés Nationales peuvent être affiliées à des sociétés d'ingénieurs déjà existantes. Les Sociétés Nationales sont soumises aux règles fixées aux articles 7, 8 et 9.

La demande d'admission d'une nouvelle société est soumise au Comité exécutif de la Société Internationale qui a le droit de l'accepter ou de la rejeter.

Si la société appartient à un pays remplissant les conditions requises par les statuts et déjà représenté au Comité exécutif du Quatrième Congrès International de mécanique des sols et des travaux de fondations, elle est admise automatiquement.

5° Chaque membre individuel ou collectif d'une Société Nationale est automatiquement membre de la Société Internationale.

Dans les pays n'ayant pas de Société Nationale le requérant sollicitera son admission auprès d'une Société Nationale de son choix disposée à accepter sa demande.

6° Les cotisations annuelles, individuelles et collectives, sont encaissées par les Sociétés Nationales. Les Sociétés Nationales versent leurs cotisations annuelles à la Société Internationale. Le montant et la date de versement de ces cotisations sont fixés par le Comité Exécutif.

7° Pour remplir les conditions nécessaires à son admission à la Société Internationale, une Société Nationale devra envoyer en double exemplaire au Secrétariat de la Société Internationale :

- (a) ses statuts;
- (b) les noms, adresses et indication de l'activité de ses membres, en double;
- (c) la cotisation pour l'année courante.

8° Chaque année à la date fixée par le Comité exécutif, la Société Nationale versera au Secrétariat de la Société Internationale :

- (a) la cotisation fixée à l'article 6.
En outre elle enverra en double exemplaire et à la même date :
- (b) un exemplaire complet de ses statuts si ceux-ci ont été modifiés pendant l'année en cours;
- (c) la liste mise à jour de ses membres, leurs activités et adresses.

III. DIRECTION DE LA SOCIÉTÉ

9° La direction de la Société est confiée au Comité Exécutif.

10° Le Comité Exécutif comprend :

- (a) le Président;
- (b) le Président Honoraire et les Anciens Présidents;
- (c) 1 Vice-Président pour l'Europe (la Turquie fait partie de l'Europe)
 - 1 Vice-Président pour l'Asie
 - 1 Vice-Président pour l'Afrique
 - 1 Vice-Président pour l'Amérique du Nord
 - 1 Vice-Président pour l'Amérique du Sud
 - 1 Vice-Président pour l'Australasie;
- (d) un délégué par Société Nationale remplissant les conditions prévues par les Statuts.

Le Président est désigné par le Président sortant, le Président Honoraire et les Anciens Présidents.

Les Vice-Présidents sont élus par le Comité exécutif. Leur mandat cesse au terme de chaque Congrès International. Ils sont rééligibles.

II. MEMBERSHIP, NATIONAL ORGANIZATIONS, CONTRIBUTIONS

(4) The International Society is composed of National Societies. The National Societies may be affiliated to existing Engineering Societies. The National Societies shall be governed by the rules stated in Articles 6, 7, 8.

The application of a new National Society for membership must be submitted to the Executive Committee of the International Society who have the right to accept or reject it.

Should the Society belong to a country in good standing represented on the Executive Committee at the Fourth International Conference of Soil Mechanics and Foundation Engineering it shall be automatically admitted.

(5) Each individual or collective member of a National Society is automatically a member of the International Society.

In countries where no National Society exists the resident shall apply for admission to a National Society of his choice willing to accept his application.

(6) Annual contributions, individual and collective, shall be collected by the National Societies. The National Societies shall pay their annual contributions to the International Society. The amount and the date of payment of the latter contributions shall be fixed by the Executive Committee.

(7) To fulfil the obligations necessary for its admission to the International Society a National Society must send to the Secretary of the International Society:

- (a) its statutes, in duplicate;
- (b) the names, addresses and occupations of its members, in duplicate;
- (c) the contributions for the current year.

(8) Each year, at a date fixed by the Executive Committee, the National Society shall send to the Secretary of the International Society:

- (a) the amount of its contribution as stated by Article 6.
It shall send further, in duplicate, and at the same date:
- (b) copies of its complete statutes if they have been modified during the current year;
- (c) the current list of its members, their occupations and addresses.

III. MANAGEMENT OF THE SOCIETY

(9) The management of the Society shall be vested in the Executive Committee.

(10) The Executive Committee is composed of:

- (a) the President;
- (b) the Honorary President and the Past Presidents;
- (c) 1 Vice-President for Europe (Turkey to be considered as a European member)
 - 1 Vice-President for Asia
 - 1 Vice-President for Africa
 - 1 Vice-President for North America
 - 1 Vice-President for South America
 - 1 Vice-President for Australasia;
- (d) one delegate from each National Society in good standing.

The President is nominated by the outgoing President, the Honorary President and the Past Presidents.

The Vice-Presidents shall be elected by the Executive Committee. Their mandate shall expire after each International Conference. They shall be eligible for re-election.

11° Le Secrétaire de la Société Internationale est désigné par le Président.

Le Secrétaire est membre du Comité Exécutif mais ne participe pas aux votes.

12° Les décisions par vote seront prises à la majorité simple. En cas d'égalité du nombre des voix, le Président décide. Le Comité exécutif tient ses séances durant les Congrès; entre ceux-ci il règle les affaires de la Société Internationale par correspondance.

Le Comité Exécutif ne peut prendre des décisions que si 50 pour cent au moins de ses membres participent au vote. Le vote par correspondance est admis.

13° Les candidatures des pays désirant être le siège du Congrès suivant sont à soumettre au Secrétaire avant l'ouverture du Congrès.

L'ordre du jour des travaux du Comité exécutif est établi par le Président et doit être soumis aux Sociétés Nationales un mois au moins avant l'ouverture du Congrès.

IV. LISTE DES MEMBRES

14° A la date fixée selon l'article 8, chaque Société Nationale envoie au Secrétaire la liste mise à jour de ses membres, leurs activités et adresses.

Le Secrétaire publie une liste des membres basée sur ces listes et en fait parvenir des copies aux Sociétés Nationales tous les deux ans.

V. CONGRÈS INTERNATIONAUX

15° En règle générale les Congrès Internationaux se réunissent à intervalles de 4 à 5 ans; les dates et lieux sont fixés par le Comité Exécutif sur la base des candidatures présentées par les Sociétés Nationales.

16° La Société Nationale du pays dans lequel se réunit le Congrès assume la responsabilité de l'organiser ainsi que prévu à l'article 17. A cet effet la Société Nationale désigne un Comité d'organisation dont le Président et le Secrétaire sont membres ex officio.

17° Dix-huit mois au moins avant l'ouverture du Congrès, ce Comité d'organisation invite toutes les Sociétés Nationales à lui soumettre les communications de ses membres. Celles-ci sont classées dans des sections qui seront définies par le Comité d'organisation en accord avec le Président et le Secrétaire. Ceux-ci désignent également un Rapporteur général pour chacune de ces sections.

Le Rapporteur général peut faire appel à la collaboration de un ou plusieurs assistants.

Les communications sont soumises aux Sociétés Nationales, à qui il incombe de les sélectionner et de ne présenter à la Société Internationale que des travaux dignes d'intérêt. Si le nombre des communications présentées est trop élevé, il sera limité pour chaque pays par le Comité d'organisation d'accord avec le Président et le Secrétaire.

La date limite d'envoi de ces communications sera fixée de la même façon. Ces communications seront réunies par section et publiées en un ou plusieurs volumes. Ces volumes qui comprennent également les Rapports généraux seront distribués aux membres de la Société trois mois au moins avant l'ouverture du Congrès.

Tous les membres de la Société ont le droit de prendre part aux Congrès. Toutefois les personnes qui ne sont pas membres peuvent également y participer par invitation.

Pendant celui-ci la présentation des rapports généraux sera

(11) The Secretary of the International Society shall be appointed by the President.

The Secretary shall be a non-voting member of the Executive Committee.

(12) Voting shall be decided by a simple majority. The President shall have a casting vote. The Executive Committee will hold its meetings during the Conferences; between these, the business of the International Society will be transacted by correspondence.

The Executive Committee cannot take decisions unless more than 50 per cent of its members participate in the vote. Votes by correspondence shall be admitted. Voting shall be decided by a simple majority.

(13) The applications of the inviting countries for the next conference shall be submitted to the Secretary before the opening of the Conference.

The agenda of the work of the Executive Committee shall be drawn up by the President and must be sent to the National Societies at least one month before the opening of the Conference.

IV. LIST OF MEMBERS

(14) At the given date (Art. 8) each National Society shall send to the Secretary the current list of its members, their occupations and addresses.

The Secretary shall publish a List of Members on the basis of these lists and shall send copies to the National Societies every two years.

V. INTERNATIONAL CONFERENCES

(15) Generally, the International Conferences shall be held at intervals of 4-5 years; time and place shall be fixed by the Executive Committee on the basis of the invitations submitted by the National Societies.

(16) The National Society of the country in which the Conference meets shall be responsible for the organization as foreseen by Article 17. To this end the National Society shall appoint an Organizing Committee to which the President and Secretary are ex-officio members.

(17) At least 18 months before the opening of the Conference this Organizing Committee shall request all National Societies to submit to it the papers submitted by their members. These shall be allotted to the sections selected by the Organizing Committee. The Organizing Committee shall nominate a General Reporter for each of those sections.

The General Reporter may, with the approval of the National Society, co-opt one or more assistants.

The papers shall be first submitted to the National Societies. These shall be responsible for selecting them and sending interesting papers only. In case there should be too many papers a quota shall be granted to each country by the Organizing Committee.

The ultimate date up to which these papers are to be sent shall be fixed in the same way. These papers shall be assembled by sections and published in one or more volumes. These volumes shall also include the General Reports; they shall be circularized to the members of the Society at least three months before the opening of the Conference.

Conferences are open to all members of the Society, and to non-members by invitation.

During the Conference the presentation of the General

suivie d'une discussion. Le Comité d'organisation fixera la date ultime de remise des textes des contributions aux discussions ainsi que leur étendue. Elles seront publiées dans les comptes-rendus.

VI. VERSEMENT DES COTISATIONS

18° Toute Société Nationale qui n'a pas payé sa cotisation depuis plus de 12 mois n'a plus droit à recevoir la Liste des Membres.

Elle perd également le bénéfice de tous renseignements et services et ne peut participer à aucun vote.

VII. AMENDEMENTS AUX PRÉSENTS STATUTS

19° Les statuts ne peuvent être modifiés que par le Comité Exécutif.

Reports shall be followed by discussion. The Organizing Committee shall fix the ultimate date up to which the text of these discussions are to be sent as well as their size. The discussions shall be published in the final volume of the Proceedings.

VI. PAYMENT OF CONTRIBUTIONS

(18) Any National Society which has not paid its contribution for more than 12 months shall cease to receive the List of Members. It shall also be deprived of the advantages of any information or service and shall not be permitted to vote.

VII. AMENDMENTS TO THE PRESENT STATUTES

(19) The Statutes can be amended by the Executive Committee only.

LE PRÉSIDENT : Now Dr Rao wishes to make a proposal.

Point 5 — Proposition concernant une réunion du Comité Exécutif dans deux ans.

M. K. L. RAO : My only reason for suggesting that a meeting of the Executive Committee should be held in two years' time is to ensure that the work of the sub-committees may be expedited, and not have to wait four years. Also it would give a chance — we are 40 nations in this Conference — to the smaller nations to have the presence of a large number of experts, the members of the Committee, in their country, and that would be of help. This is the practice in the Congress on Large Dams and it has worked very well, and that is why I thought it might be useful if we could do it also.

The proposal is for a meeting of the Executive Committee, one session, between the Conference sessions.

LE PRÉSIDENT : This is an excellent proposal in principle but I think that the financial difficulties would be very great. It would cost perhaps £ 2,000, unless the whole of the Executive Committee were able to finance themselves, to get to such a meeting. Many of us are not in a position to receive substantial grants to come to a meeting of this kind, and I think that this might raise great difficulties. But I think on this point I would welcome one or two comments from the floor.

M. B. A. KANTEY (Afrique du Sud) : Could this not be overcome by correspondence — close liaison between the Vice-Presidents?

LE PRÉSIDENT : It is a good point. It is provided for in the Statutes, but I do not think we have made enough use of it.

M. BOLOGNESI (Argentine) : I would agree with your suggestion, because it is more or less becoming a general practice to have every year between the International Conferences regional conferences, and I think for most of us that is as much time as we can dedicate to the Society. I think the way now established is satisfactory. For that reason I think that, although in theory this is an excellent idea, because of the time we must dedicate to be able to attend, this practice as we have it now is all right.

LE PRÉSIDENT : Is that the general feeling? I think it is. So we will carry on as we are doing. I quite agree with Mr Bolognesi's comment. If we are not careful we shall be spending

all our time in conferences and not doing any work. But I think we might well have more correspondence. May we see how that works out?

(*Proposition adoptée.*)

Point 6 — Proposition visant à ce que le siège des futures Conférences soit choisi à tour de rôle dans les divers continents

M. K. L. RAO : The particular resolution I make here is that the President should be entrusted to prepare proposals, and place them before the next Executive Committee meeting, for rotation of the continents in which these Conferences may be held, having due regard to Europe and America, because they are the places where the largest number of countries are engaged in this and have the largest number of members. But I wanted this to enable us to avoid this discussion about the place at every meeting. The President will be requested to draw up a suggested rotation of the several continents in which the Conference will be held. We start with Europe, then Asia, then again Europe. And the place we choose in Asia depends on the number of invitations that are received, and it will be decided when its turn comes.

LE PRÉSIDENT : I am going to throw this point open for discussion at once.

M. O. MORETTO : I have the feeling that with the Conference growing as it is growing now we may have just one invitation, if we do get one, for the next one. So we are not in a position to say "The next Conference we will have in Asia" — or "in Africa", and so on; we will have to wait to get somebody to invite us.

LE PRÉSIDENT : I think that is an extremely practical view. At the previous meeting of this Committee I did indicate, in the strongest way I was able, that there can be no question at all that the one succeeding the Canadian Conference should be in what I call the "Eastern" part of the world — that is, Australia and the East — and this was very generally agreed. We could perhaps leave it to the good sense, the sense of justice, of the Executive Committee to see that some sort of circulation of the type Dr Rao is wanting will in fact take place.

I find myself in complete sympathy with Mr Moretto. We may not be able to lay down as a rigid rule some predetermined sequence of rotation. Undoubtedly the task of organising these Conferences is growing and I think that

we may have to consider some means of restricting the attendance. Whether this will be necessary at Montreal or not, of course I cannot say. We hope that it will not be. But I do not think we could altogether rule out the possibility of some quota of attendance in the future.

However, I am only mentioning this as an indication of the sort of difficulties which I think we shall have to face in future Conferences.

Do we agree, then, that we leave it to the good sense of the Committee to see that there is a just rotation?

(*Proposition adoptée.*)

Point 7 — Publications entre les Congrès

M. B. A. KANTEY : This is more a question than a proposal. Since the question was first raised at the first meeting of this Executive Committee it has become very apparent that there is a very real need for some international medium for the publication of interconference papers of interest. Mr Nash has stated that he would welcome the expansion of *Geotechnique* to fill this need as an international forum. We believe that this is an extremely good idea, because of the wide circulation that *Geotechnique* has at the moment, but it does bring up that rather vexed question of refereeing of papers which is common to any technical publication body.

Could Mr Nash please explain how he would suggest expanding the refereeing system of *Geotechnique* to cover such an international field, with the very divergent points of view that are represented on the international field?

M. L. J. COOLING (Grande-Bretagne) : I do not think I can speak precisely for Mr Nash, but certainly the editorial panel have been giving very serious thought to the problem of refereeing papers from various countries. I do not think I can say more than that we are giving it serious consideration. We have not yet reached any final conclusion, but we are giving it very serious consideration.

LE PRÉSIDENT : I do not think there is very much this Committee can do about your point, Mr Kantey. But I might say that efforts are being made to improve the existing publications and their scope as much as possible.

Point 8 — Proposition soumise par le professeur Jennings

M. J. E. JENNINGS (Afrique du Sud) : This matter has already been referred to in this meeting, but I do think it is opportune for the Executive Committee to direct its attention to the question of the size and growth of these Conferences. We have grown considerably beyond the London Conference, which was a growth beyond the previous one, which was a growth beyond the one before that. What is going to be the end of this? We have now tacitly admitted three additional languages. We have at least taken the first steps in those admissions. And, as I foresee it, within the next three Conferences we will have a much wider language representation than we have today.

Now we have just over 1,000 members at this Conference. What is going to be the position in Montreal and in the Conferences which lie ahead? I am thinking three Conferences ahead, and I think we must be starting to think about the Conference which follows Montreal, so that the necessary machinery can be put into effect, or at least thought about, in this interim stage.

The question is, how large can we grow? And if we are going to limit growth at all, how can we control it so that we can keep within the possibilities of such an international gathering?

I would like to suggest, Sir, that we leave this matter fairly wide open to the organisers of the next Conference. I do

not think we should give them any leads; we should just express concern about the continued growth in relation to the possibilities of organising this Conference, and leave them then to try and work out ways of handling this matter. I trust that in those deliberations they will be able to find some formula which will also deal with the Conferences which lie ahead.

LE PRÉSIDENT : I think that was a most thoughtful contribution, Prof. Jennings. I find myself in full sympathy with it, in both senses: that is to say, I feel that this question of growth is a very real one and at the same time I feel that it is principally a subject for the organising committee of the next Conference.

I take it, then, that you are not actually proposing we should set up any committee to consider this question? I think perhaps what you would like to do would be to test the feeling of this meeting, so that the Canadians could have some idea as to what this meeting feels about the size of Conferences. My own feeling is that the present Conference is just about big enough. I would not like to suggest that we should bring the guillotine down at 1,000 members but I think we would just have time for two or three quick comments from the floor to see what we might consider the optimum size.

M. J. G. ZEITLEN : I have the feeling essentially as you have stated, that this is just a little bit too big at the moment; but I wanted to ask if Prof. Jennings' comment was to be interpreted in rather more straightforward language as being that if the Canadian group decides that they should limit the number of participants the Executive Committee would agree. Is that the suggestion?

LE PRÉSIDENT : I think we may have to face that question. I do not think it is one we can make a proposal on but I would like to get the feelings of this Committee, whether they are violently opposed to such a suggestion or whether they are on the whole sympathetic. Before I ask for that opinion to be voiced, are there any comments?

We are not making a firm proposal: we are simply endeavouring to give some guide to the Canadians in case they do find themselves running into great difficulties with excessive numbers. Those who feel that, although we do not like to do it, we may have to impose some sort of restriction, please raise their hands? Those who feel we should let nature take its course? (*Vote à mains levées.*)

LE PRÉSIDENT : *There is a slight majority in favour of letting nature take its course.*

M. R. PIETKOWSKI : Mr President, who abstained?

M. MAYER : Je crois que notre président Skempton a très justement dit que cette question concerne essentiellement les possibilités d'organisation du pays où se tient la conférence plénière. Il est certain qu'une conférence qui réunit 1.100 membres est difficile à organiser, et peut-être serait-elle plus fructueuse s'il n'y en avait que 200 ou 300, mais c'est bien pour cela que nous envisageons, et que vous envisagez tous, je crois, d'avoir des conférences régionales sur des sujets limités, qui seront réduites à quelques centaines de personnes.

Au contraire, en ce qui concerne les conférences plénières qui se tiennent tous les quatre ans, je crois que dans toute la mesure où le pays invitant peut les recevoir, il faut donner à tous ceux qui en ont l'envie la possibilité d'y participer.

LE PRÉSIDENT : Thank you very much. I do not think we can have anything very concrete on this point.

M. L. ZEEVAERT (Mexique) : I think one of the most important things in a Conference like this is that we are giving an opportunity to the engineering profession to get acquainted

with what is going on here. If we limit the Conference to just, so to say, very technical affairs we do not give the opportunity to the engineering profession to get acquainted with us; I guess we are not on the right road.

LE PRÉSIDENT : It is fairly clear that the general feeling is that so far as it is possible we should not restrict; but, of course, if the situation shows signs of getting out of hand then we can consider it again.

Now we come to questions dealing with sub-committees.

Point 9 — Proposition pour la création d'un Sous-Comité chargé des facteurs de sécurité

M. J. BRINCH HANSEN (Danemark) : In my opinion the question of factors of safety in soil mechanics is one of the very few subjects that is suitable to be dealt with by a sub-committee. I wish to point out that I do not propose that this committee should fix the actual figures of safety — that would indeed be harmful — but I do think it would be a good clarification if some accepted rules or definitions of factors of safety and the way of introducing such factors in our calculations of failure problems would be good. Therefore I propose that we form such a sub-committee.

LE PRÉSIDENT : Again I am going to call immediately for any comments.

M. O. MORETTO : When I first heard about the proposal of having a sub-committee on factors of safety I felt very much in favour of it, because, as you all know, all the refinements in our calculations are drawn somehow through the factors of safety, which up to now are only derived from what I would call unqualified experience. But thinking it over more carefully and relating this problem to the work that has been done in other fields of structural engineering, like reinforced concrete and steel, I see that the work of this body would be very difficult, and I have strong doubts whether it would be able to come to anything concrete.

I am not talking against a committee: I just want to ask you to be very careful before deciding anything, because we might get into troublesome waters. I am sure that everybody is conscious that, first, the factors of safety in earth work are lower than the ones being used in other branches of structural engineering. As a matter of fact I always find myself in trouble to explain to my students why the factor for an earth dam is only 1.5 maximum while when designing reinforced concrete structures, of which we know much more, we take a factor of safety which is about 2. In concrete we can control every step of the construction and we can control with sufficient accuracy the properties of the material we are using, while in soils the uniformity of the properties of the material will vary tremendously from one place to another.

So I think the sub-committee, if it is established, should be concerned exclusively with general rules — and only general rules — about this factor of safety, without giving any specified figure on the numbers to be used in determining the stability of any type of structure.

M. BRINCH HANSEN : That is what I said.

M. A. KEZDI (Hongrie) : I am in favour of what Prof. Brinch Hansen has said, for a committee on factors of safety, because when once we settle the general principles we can start on numbers too. I am in favour of Prof. Brinch Hansen's proposal.

M. K. L. RAO : This is one of the very serious suggestions which we should very carefully consider. The factor of safety means the finality of things, and as a designer I deal with this factor of safety almost every day, and it varies widely depending on so many factors, even for earth dams. It can

vary from the one place to the other, depending on extraneous factors, even for stability for slope the factor can vary from 0.59 to 1.2. Therefore I would say that it is the domain of the designer to take the factor of safety he wants, and what it should be. I would say that before any committee should be even thought of what we should do, if people are really interested in this, is call for a symposium on this and find out the practices in various countries actually being used, then when we see whether there are any methods which are common we can find something which is common to all. Otherwise, to fix a safety factor is the most dangerous thing anybody can do in a situation like ours.

LE PRÉSIDENT : We should make it perfectly clear that there is no proposal to fix any values of factors of safety. The proposal is simply to discuss, and if possible to agree upon, the methods of calculating factors of safety in a given case: for example, stability of slope. My own feeling is that this is a subject which is perhaps better left to grow on its own account, and we may find ourselves coming into agreement as the problem is more fully understood. I think a sub-committee might perhaps force the issue, which would not actually be a useful thing to do. In effect we will ultimately be using the same, or very similar, methods when we get to the point of appreciating all the problems involved and we can see what are the correct methods. If that should happen we shall not need a committee.

I will take a quick vote on this. Those in favour of a committee.

M. J. BRINCH HANSEN : May I change the proposal? I propose, instead of having a sub-committee, having a section on factors of safety at the next International Conference. This idea was given to me by Rao.

LE PRÉSIDENT : That is to say it either becomes a section of the Conference or at least has a symposium arranged at the next Conference? I think everybody seems to be agreed to that? (*Proposition adoptée.*)

I take it Mr Legget has noted that? Thank you.

Point 10 — Date de présentation des rapports des divers sous-comités

LE PRÉSIDENT : I am going to save time by saying that this item is a proposal by Mr Townsend that a date for the presentation of sub-committee reports be fixed at nine months in advance of the Conference. I think that his own suggestion of six months I would modify very slightly, and make it nine.

I am very much in favour of this. We cannot actually force the sub-committees to do this, but it is to be strongly encouraged, by means of a resolution by this Committee, that there should be a report submitted nine months before the Conference. That would be a great advantage, in so far as the national committees would then have a chance to see and study these reports, so that they can come prepared to the main Conference and vote knowingly on these things, rather than having to make quick decisions — which I am afraid is what we had to do this time.

I would propose, therefore, that we make a recommendation that sub-committee reports be submitted nine months before the date of the Conference. (*Vote à mains levées.*) (*Proposition adoptée.*)

Point 11 — Aide financière aux sous-comités

LE PRÉSIDENT : Mr Kallstenius, who (as you know) is now Chairman of the new sub-committee on sampling, is raising the general question of financial aid. May I answer

him by saying that if he would write in to Mr Banister he will find out what financial aid is possible, in general terms. This is not a point we need discuss any further. Various of the sub-committees have received small amounts of financial aid from time to time and no doubt this will be extended to Mr Kallstenius's committee.

Point 12 — Organisation de chaque sous-comité

M. C. VAN DER VEEN (Hollande): This point is covered largely by Item 10. Mr Townsend and I only wanted to add the question whether there is any possibility when a sub-committee is working for it to keep in contact with the national societies.

LE PRÉSIDENT : Mr Van der Veen is asking whether there can be any mechanism for the sub-committees, during the time in which they are working, keeping in touch with the national committees.

M. VAN DER VEEN : I understand the committee headed by Mr Kallstenius works in this way, and it seems to work very satisfactorily.

LE PRÉSIDENT : That is true; Mr Kallstenius's committee is working that way. I would think from my experience with the symbols sub-committee that the considerable confusion

that arose on that committee — through nobody's fault — would have been made still greater had they been in touch with every national committee while their considerations were going on. One has got to clear one's ideas, and then present them. Are you satisfied with that?

M. VAN DER VEEN : Yes.

LE PRÉSIDENT : I think we will have time for the last point.

Point 13 — Séances de discussion simultanées

M. C. VAN DER VEEN : My impression was that the organisation worked quite well, only I have some doubt if it is good to have simultaneous sessions, because in some cases people coming from some distance and being interested in several points are not in a position to attend the meetings.

LE PRÉSIDENT : The point is well taken, I think. No doubt Mr Legget has already understood that most of us are sympathetic to the last point that was made.

I find we have managed to get through this agenda. Thank you very much for co-operating in such a quick meeting.

I now declare the Executive Committee meeting to be closed.

La séance fut levée à 16 h. 10.