

THE GENERAL ASSEMBLY

July 13, 1928

The General Assembly met at 10.00 on Friday, July 13, in the Stadsgehoorzaal for its final meeting, President de Sitter in the chair.

Prof. Stroobant presented the report of Commission 3. Dr Vanderlinden had acted as Secretary. The commission had asked for a grant to publish the charts and boundaries prepared by M. Delporte. The Executive Committee were not willing to make this special grant for an independent publication but would publish the details in the *Transactions* of the Union, if they were adopted by the General Assembly. Prof. Andoyer expressed his opposition to the proposal on account of its artificiality. Prof. Schlesinger pointed out that it was a convenience to stabilise the boundaries of the constellations in some simple way. They would not be seriously modified and no star with a Bayer letter or a Flamsteed number would be altered at all. Dr Jones asked why it was proposed to stop at $12^{\circ}5$ S. The President pointed out that Gould's charts carried on further to the south. Prof. Stroobant added that the equinox of 1875.0 had been selected to carry on from the existing southern boundaries. Prof. Hertzsprung added that the variable star commission wished to make one or two changes in the boundaries of the southern constellations. The resolution was adopted.

The grant of £90 required for resolution 2 (p. 223) had been already approved under resolution 9 of Commission 5. Resolutions 3-5 involved no action on the part of the Union but with regard to resolution 6 Prof. Shapley stated that several astronomers wished to record their opposition to the choice of a star as a zero point. An equinox had been used in the past. Prof. Eddington reminded the Assembly of the resolutions adopted by Commission 33, who were considering the position to adopt for the galactic pole. Prof. Stroobant pointed out that this decision had been arrived at after discussion at the Cambridge meeting. Resolution 6 was withdrawn. Resolutions 7, 8 and 9 were really indications for decisions to be taken at the next session of the Union. No action was recommended by the commission on the other propositions referred to them by the General Assembly at its first meeting.

Prof. Strömngren presented the report of Commission 6. Mr Felix de Roy had acted as Secretary. The resolution asking for a grant was due to the fact that up to October 1929 the Bureau of Telegrams would receive financial assistance from outside, which was now being discontinued. The President mentioned that the Executive Committee regarded this application as one on which the funds of the Union might very properly be spent. Both the resolutions proposed by the commission were adopted.

Prof. Andoyer presented the report of Commission 7. Prof. Merlin had acted as Secretary. The commission's work had consisted mainly of an exchange of information and there were no recommendations to place before the Union. The report was adopted.

Dr Oort, who had acted as Secretary of Commission 8, reported that there were no general resolutions to submit to the Assembly. The draft report was adopted.

Prof. Fabry reported that the work of Commission 9, of which Prof. Chrétien had acted as Secretary, had also largely consisted of the interchange of information, most of which would be published shortly in some of the scientific journals. The report was adopted.

Prof. Fowler presented the report of Commission 14, of which Dr Meggers had acted as Secretary. The recommendations in the draft report (p. 84) had been slightly modified. The 1927 report of the Bureau of Standards had appeared since the draft report of the commission was prepared and had eliminated the first of those recommendations, which had been dropped. Of the remaining resolutions two required action by the Union, that on the adoption of secondary standards in the iron arc and that on the adoption of standards of solar wave-lengths. Both these resolutions were adopted as also the other recommendations of the commission. Prof. Fowler added that the commission were deeply indebted to Mr Babcock for the immense labour that he had expended on the report.

The Rev. T. E. R. Phillips presented the report of Commission 16. Mr Luplau-Janssen had acted as Secretary. Many matters included within the scope of the commission had been discussed, more especially some of the more recent methods of physical research, and the need of preparation for the approaching opposition of Eros in 1931. The full report contained suggestions and recommendations for future work. Resolutions were submitted to the Assembly recommending further research on the absorption bands in planetary spectra and also arranging for the compilation of a list of the names employed or suggested for the markings on Mars. Both these resolutions were adopted.

Prof. Turner presented the report of Commission 17. Miss Williams had acted as Secretary. The object of the commission had been to secure universal assent to a definitive list of names of the lunar markings. The Executive Committee had been asked to expand the commission so as to secure a body able to command this assent. In giving up the presidency of the commission he had one parting request to make and that was that the Union should secure unanimity for its decisions. The report of the commission was adopted, also a request for a grant of £30 to meet certain expenses, some of which had already necessarily been incurred.

M. A. Lambert presented the report of Commission 18, of which he had acted as Secretary. He explained that the publication of the results of the experiments conducted in October and November 1926 was contemplated but that it would be done without expense to the Union. Further it was hoped that these experiments would be repeated periodically with such improvements as past experience should suggest.

Dr Innes presented the report of Commission 20, of which he had acted as Secretary. There had been no resolutions adopted which required action by the Union, but only a number of useful recommendations some of which had been forwarded to other commissions of the Union. The report was adopted.

Prof. Olivier presented the report of Commission 22, of which Mr De Roy had acted as Secretary. The commission had discussed the three resolutions (*e*), (*f*) and (*g*) referred to them by the General Assembly. They agreed in principle to the two latter but saw no reason for any change in the present usual notation of meteor showers. Of the resolutions put forward in the draft report (p. 132) all had been adopted save numbers (1) and (6), action on which had been postponed; the commission had also empowered their President to try to arrange for the systematic examination of large collections of stellar photographs for meteor trails and also they had asked Mr De Roy to put before Commission 27 the desirability of observing telescopic meteors. The report was adopted.

Prof. Turner presented the report of Commission 23. Miss Williams had acted as Secretary. Prof. Turner explained that the scheme dated from 1887 and that now it was drawing within sight of completion. The chief point which at the moment concerned the General Assembly was their action with respect to the zone originally undertaken by Potsdam. It had been a great help to have Prof. Ludendorff at the meeting. He had explained the circumstances which had led to the withdrawal of Potsdam and he had been present at the discussion of the best way to replace Potsdam. There had at one time been a hope that the Observatory of Uccle would be able to help in the matter, but that hope had proved a vain one. The alternative was that Hyderabad, which had now nearly completed the Santiago zone, should take on half the work, while the two portions nearly completed at Potsdam should be taken over by Oxford. The Union was asked for funds to help in the printing of the work when completed. The money granted should accumulate as a fund to meet the printing of the volumes as they became ready. The President wished to express the appreciation of the Executive Committee for the work which Oxford and Hyderabad were undertaking, the value of which far exceeded the grant which was being asked for. They hoped that Prof. Turner would see the completion of the work in a short time now. The resolution and report of the commission were adopted.

Prof. Schlesinger presented the report of Commission 24. Prof. van Rhijn had acted as Secretary. The commission had made an adverse decision on proposition (*d*) referred to it by the General Assembly, while proposition (*m*) had been withdrawn. A recommendation had been adopted that proper motions should be expressed in terms of seconds per year and not per century. The report of the commission was adopted.

Dr Lindblad, who had acted as Secretary of Commission 25, stated that there were no resolutions to be submitted to the General Assembly. The draft report of the commission was adopted.

Prof. Hertzsprung reported that there were no resolutions from the meeting of Commission 26 and no requests for grants. Prof. van Biesbroeck had acted as Secretary. The report was adopted.

Prof. Shapley presented the report of Commission 27, of which Mr De Roy had acted as Secretary. An important step had been taken in the appointment of a sub-committee under Prof. Mascart to secure co-operation in the photovisual work. Resolution 1 (p. 249) involving a grant to Prof. Nijland was adopted. Resolution 2 in its first form was withdrawn on account of the opposition of the Executive Committee to the principle involved; reference to the principle was now omitted. The President explained why the Executive Committee had been

at first opposed to the grant asked for towards the cost of printing the observations of the British Astronomical Association. They now accepted the application for £76; this was also adopted by the meeting. Resolution 3 was approved in the form of an annual grant of £25 to the Cracow Observatory. The other resolutions of the commission required no action on the part of the General Assembly; the view of the commission was adverse to resolution (e) referred to them by the General Assembly. The report was adopted.

Dr Plaskett presented the report of Commission 30, of which Dr Spencer Jones had been Secretary. Certain resolutions as to lists of selected stars would be printed in the final report. They required no action on the part of the Union. The report was adopted.

The President stated that to meet the convenience of certain members it was important to settle at an early hour the time and place of the next meeting. The following invitation had been received from the United States:

"The American delegation cordially invites the Union to hold a meeting in the United States of America early in September, 1932.

In extending this invitation the delegation calls attention to the fact that there will be a total eclipse of the sun on August 31 of that year, the path of which crosses eastern Canada and the north-eastern portion of the United States."

No other invitation was before the Union but before coming to a decision they should consider the request from the Geodetic Union which had already been mentioned to the Assembly.

Prof. Lallemand, President of the International Union of Geodesy and Geophysics at the Prague meeting in 1927, said that that Union would find it necessary to meet in 1930 to consider what changes were necessary in their statutes, which would expire at the end of 1931. Only so would there be time for the diplomats to do their share of the work of renewal of the convention so that work might be sanctioned in time and go forward without dislocation. The Americans had asked for close agreement between the two Unions as to time and place of meeting and the Prague meeting left the final choice of their 1930 meeting open as between Lisbon and Stockholm, in the hope that the International Astronomical Union might meet near the same time and place. An enquiry had brought the answer that there was no chance of the Astronomical Union meeting in 1930 at all and the Geodetic meeting had now been fixed for Stockholm. They would have been glad to have met us in 1930 but if that could not be they could only hope to meet near each other at some later date. As an original member of the International Research Council he would wish to express the hope that the other countries would come in.

The President thanked Prof. Lallemand for his explanation, though the reference to the International Research Council was out of order and could not be discussed at this juncture. With regard to the meeting of the two Unions together it was impossible for the Astronomical Union to hold two ordinary meetings closer together than three years. There was a heavy burden on the Presidents of commissions in preparing reports for the meetings and a meeting held after a short interval would be robbed of much of its value. This was the reason for the reply from the Executive Committee. As to the expiry of the Statutes they were prepared to believe that the Union would continue to exist after 1931 and were quite prepared to accept an invitation for a meeting in 1932.

An extraordinary meeting of the General Assembly would be called to consider changes of Statutes—possibly in 1930.

On the proposal being put to it the meeting expressed its appreciation of the invitation from the United States which was accepted with great pleasure.

Prof. Schlesinger said that it was a great satisfaction to the members of the Union from Canada and the United States that this invitation should have been accepted so cordially. He wanted to utter one word of warning. They would find it very difficult to live up to the standard set at the recent meetings of the Union.

Prof. Deslandres expressed the hope that a subsequent meeting of the Union would be held in Paris.

Dr Malmquist then presented the report of Commission 33, of which he had been Secretary. The resolutions to have tables drawn up converting equatorial co-ordinates and proper motions into galactic ones were adopted without any financial commitment, the hope having been expressed that funds might be found from some other source. The commission made no recommendation with regard to proposition (*d*) referred to it by the General Assembly.

Dr Spencer Jones presented the report of Commission 34, of which he had acted as Secretary. There were no recommendations for the Assembly to vote upon. The work of the commission had been mainly one of making arrangements for the coming opposition of Eros. A resolution had been passed urging all observatories with suitable instruments to co-operate in securing observations of Eros, and by means of a rotating sector to secure equality between the magnitude of Eros and of the comparison stars, and they had asked Commission 29 to help in securing data as to the spectral types of the reference stars and as to the colour of Eros. Prof. Kopff was undertaking the preparation of a general catalogue of Eros reference stars and Prof. Witt was continuing his work on the orbit of Eros and would derive an exact ephemeris of the planet near opposition. The report of the commission was adopted.

Prof. Sampson then read the report of Commission 31. Dr Madwar had acted as Secretary. The commission had adopted four resolutions as follows:

1. The President has examined the details of expenditure for the past three years and certifies that all is in order according to the Regulations.
2. The Commission has taken into consideration the form of its Regulations which subsist until 1931 and is of opinion that they require change in several particulars. Accordingly it has prepared a draft of regulations expressing its view, and transmits it herewith to the Executive Committee for consideration.
3. The funds allowed for the past triennium have been exceeded and an increase of subvention is required. The sum asked for is 75,000 fr. for each of the three years 1929, 1930, 1931, together with a supplement of 13,000 fr. for the current year.
4. In view of the extent to which the services of the Bureau assist geodetical work, the Commission considers that it would be reasonable that the President of the Union should approach the President of the Union of Geodesy and Geophysics, and ask him to take into consideration whether the Geodetical-Geophysical Union could give some assistance towards the expenses of the Bureau.

The first resolution was his report to the Union that all was in order according to the present regulations. The second resolution scheduled a number of new

regulations for the Bureau de l'Heure adopted in principle by the commission and now transmitted to the Executive Committee for such action as they found possible. The third proposition was in part a statement of fact and in part a statement of the requirements of the commission on the present basis.

The President read again the resolution of the Executive Committee: The Executive Committee express the hope that until the termination of the present convention (Dec. 31, 1931) the direction of the Bureau de l'Heure may be undertaken by the Director of the Paris Observatory and that after that date the present activities of the Bureau may be continued without drawing upon the limited funds of the Union, perhaps with the co-operation of observatories and other institutions.

The President added that it was the view of the Executive Committee that the budget of the Bureau de l'Heure should be decreased rather than increased.

Prof. Sampson regretted that he must occupy the time of the General Assembly with a matter that lay on the fringe of astronomy, but as he would make clear the question was of the utmost importance to the Union and indeed to science.

They had heard that owing to the fall of the franc the *B.I.H.* was now costing 75,000 fr. per year, and that the Executive Committee require that they should spend only 63,000 fr. for three years and thereafter perhaps nothing.

This meant drastic economies amounting to a change of system.

One change would be an obvious improvement and would permit rearrangement of function and economies of administration—to unite the direction of the Bureau with the direction of the Observatory.

M. Deslandres would no doubt repeat the assurances that he gave in the meetings of the Commission, to the effect that the system was possible and that substantial economies would result.

Why then was not this done by a stroke of the pen? Because the Regulations that existed tied their hands.

An international convention for standardising time was drawn up in 1913. The time was to be Greenwich time but the organization was centred upon Paris. At that epoch the Eiffel Tower was the principal emitting station in this part of the world. The French Government undertook the whole cost of emission and the Observatory of Paris the astronomical functions. The funds provided for administration, which it was not easy to separate from the astronomical part. This was drawn up on behalf of numerous governments, Sir Frank Dyson being the British representative. Owing to the advent of the war it was never ratified. But it did not collapse. The French Government had treated it as an obligation of honour from the beginning and had continued to discharge the whole cost of emission, while our first President, the honoured and well-loved M. Baillaud, treated it as an honourable obligation upon the Observatory of Paris and indeed upon his private purse. No one could confer with M. Baillaud on the question without realizing the importance he attached to it. The Time Commission was a keystone.

In 1919 this convention was transferred with little change to the I.A.U. It was represented by the Regulations to which he had referred. It was not denied that these and the administration that followed from them were open to improvement and for that reason the C.I.H. had offered to the Executive Committee a draft which expressed its views of the changes required.

They had heard yesterday Sir Frank Dyson's views upon the matter. He was

in a minority in the Commission where his proposal was that the Commission should express no opinion at all upon its own constitution, and thereby should tacitly refuse its aid to the Executive Committee in this difficult matter.

If it was indeed felt that practical questions and the consideration of public needs were outside the functions of this Union, and that in consequence they desired to be released from the calls of the C.I.H., it was an obligation to proceed in the most formal manner. The matter should be brought to the knowledge of the International Research Council, with the request that the I.R.C. should advise the various adherent governments of the fact.

It was a question which each would weigh with his own scales. His own personal opinion was that such a renunciation of public relationships would be a disaster for astronomy and for science at large.

The President said that the remarks which Prof. Sampson had made put the matter clearly before the meeting. The resolution of the Executive Committee included an expression of hope that the Observatory of Paris might take over the direction of the Bureau de l'Heure as arranged originally in 1913. Reorganization was necessary and a total change of system was urgently required. The conditions had changed completely since 1913. The Tour Eiffel was no longer the only important emitting station. The necessity for the Union to devote forty per cent. of its income to this one subject was now altogether out of proportion. The work must be continued of course, but on a different system. The Executive Committee expressed the hope that a commencement of reorganization might be made during the next three years. The new Executive Committee would consider very carefully the draft regulations submitted to them by Commission 31. The present Executive Committee had found it impossible to recommend an increase in the annual grant to the Bureau de l'Heure. They proposed a grant of £100 to meet accumulated debts and also the continuation of the present annual grant.

Prof. Deslandres said that they must return to the original organization. This was the view of M. Baillaud, General Ferrié, and of the others concerned. The new scheme would lead to economies. The Bureau de l'Heure would always be required.

Prof. Bigourdan gave a brief account of his work at the Bureau de l'Heure during the previous nine years. He would welcome criticism of his work and would defend himself.

Prof. Turner said that he should like to make clear what was happening. The difference of opinion was not one about the quality of M. Bigourdan's work but a difference of opinion between Prof. Sampson and the Executive Committee as to the position of the Bureau de l'Heure.

The President said the Executive Committee's resolution was but an expression of hope which might affect future policy: the Committee asked the General Assembly to endorse their hope so as to give it more weight.

Prof. Turner asked if it meant the suppression of this Commission after 1931.

Prof. Andoyer asked that the two halves of the motion should be voted on separately.

Prof. Sampson asked what grounds the Executive Committee had for the realization of their hope.

The President said that both the Commission and the Executive Committee had had to face the needs of reorganization. In reply to Prof. Turner he would say explicitly that they were not trying to kill the Commission but to clear the way to a satisfactory solution of their difficulties. He ruled that the questions to be submitted to the meeting were scientific questions and would be voted upon by individual delegates and not by countries.

The first part of the Executive Committee's motion was adopted without opposition, the second part by 30 votes to 14.

The four resolutions of Commission 31 were then voted upon. 1, 2 and 4 were adopted. In place of 3 the Assembly voted a grant of £100 to cover past debts and an annual grant of £500 a year for 1929, 1930, 1931.

The President then moved the adoption of a resolution from the Executive Committee that the new Executive Committee be asked to appoint a committee to consider the revision of the statutes and to report to the General Assembly, the committee to be appointed at the moment considered most opportune by the Executive Committee.

Prof. Turner asked whether it was not preferable to have the committee referred to the General Assembly. It was far better to have the names submitted now.

Prof. Bigourdan agreed with Prof. Turner.

The President stated that the Executive Committee were of opinion that it was best not to fix the names until later. They wished to defer the matter until certain other countries had joined the Union, if they did so in time. It was preferable not to appoint the committee until it could start work.

Prof. Turner withdrew his opposition and the motion was adopted.

The President said that the term "Member of the Union" was very vague. Many astronomers, who on their merits should be in the Union, were kept out because for various reasons, such as the presence of a colleague from the same observatory on the most suitable commission, they were not members of any commission. In drawing up lists of commissions there was frequently a conflict of interest between the interests of the commissions and of the adhering nations. He moved that the new Executive Committee be asked to frame rules making membership of the Union independent of membership of commissions.

Dr Fotheringham said that this was a superfluous resolution. The statutes did not recognize such things as personal members. The question should be referred to the committee on statutes. At present only members of national committees, delegates of adhering organizations and members of commissions could have personal relations with the Union.

The President said that Dr Fotheringham had in his reference to delegates really only brought forward what was one of the arguments in support of the proposition which sought to clarify these personal relationships.

Prof. Bigourdan said that the whole matter should be referred to the International Research Council. It was not within their power to take such action.

The President said that this would not be accepted by the Executive Committee. They were not proposing any change of statutes. The motion was then adopted.

Prof. Turner then moved that the lists of proposed members for the commissions to hold office until the next General Assembly of the Union be adopted without discussion. The lists had been prepared for the Executive Committee by a special committee appointed *ad hoc* and had been circulated during the meeting. Dr Jackson seconded the motion, which was adopted after the President had mentioned that Commission 15 now became an additional centre in Commission 12, and that a new Commission 35 on the constitution of the stars had been formed.

The President said that this was the end of their official agenda except for the final business of electing the new Executive Committee. He hoped that the meeting had not been useless but would be productive of many valuable results for the science that they all had at heart. The success of the meeting, and he felt that it had been a success, was largely due to the manner in which they had been received by all the responsible authorities, and before he left the Chair he wished to move that the hearty thanks of the Union be given to

Her Majesty's Government and his Excellency the Minister of Education:
The Burgemeester and Municipality of Leiden:
The Rector Magnificus and Senate of the University of Leiden:
The Local Committee and especially its President, den Heer A. Reimeringen, and its indefatigable Secretary, Dr C. H. Hins:
The authorities of the Tramway and Railway services:
The Director General of the Zuiderzee reclamation works:
The Director of the Frans Hals Museum at Haarlem:
The Organist of St Bavo's Cathedral:
and last, but by no means least, to the *praeses collegii*, Leidsch Studentencorps.
The vote was agreed to by acclamation.

The President then announced the names proposed by the Executive Committee for the new Executive Committee. He himself proposed to follow the precedent of M. Baillaud and President Campbell and not to seek re-election. Prof. Schlesinger and the General Secretary would continue to serve until the next General Assembly, but Prof. Eddington wished to resign his office and the Executive Committee proposed to nominate Prof. Abetti to serve for the remaining three years of his term of office. The other new officers proposed were

President: Sir Frank Dyson.
Vice-Presidents: Prof. H. Andoyer.
Prof. N. E. Nörlund.
Prof. F. Nušl.

The election of these new officers was unanimously carried.

The retiring President then vacated the Chair which was occupied by Prof. F. Schlesinger, who stated that Prof. de Sitter in proposing certain votes of thanks had necessarily made some obvious omissions. He would ask various members to address the meeting.

LADY LOCKYER:

MR PRESIDENT, LADIES AND GENTLEMEN,

I feel much honoured in being asked to give the thanks of the guests to the members of the Ladies' Committee who have done so much for our pleasure.

We have been shown round Leiden and taken on the lake, we have visited Haarlem, The Hague and Rotterdam, and last evening we had a most unique and delightful party in the midst of a lovely park.

To carry out all the necessary arrangements without a hitch must have meant endless work for a very long time. Many ladies I know were assisting, but especially I must ask you to thank Mrs de Sitter, the President of the Ladies' Committee, who arranged such a charming garden party on Tuesday and had the happy thought of introducing her helpers in the costume of the country; Miss de Vries, who in acting as Secretary has given us assistance in every direction; also Lady van Eysinga, Mrs Vijgh, Miss Gerlings, Mrs Kuenen and many others who have acted as hostesses and shown us round—to those I have named and to the other ladies of the committee I would ask you to give your heartiest thanks for all they have done to make our visit most enjoyable.

Mrs DE SITTER:

May I on behalf of the Ladies' Committee thank you for that vote and Lady Lockyer for her kind speech. I hope that the friendship in our hearts may increase with every meeting of the Union.

Prof. ABETTI:

After having enjoyed, as we did, the most wonderful hospitality in Leiden, it is a very pleasant though difficult duty to express the gratitude of all the astronomers present at the third meeting of the I.A.U., to Her Majesty's Government of Holland, to our President, Prof. de Sitter, and to the Reception Committee. Still more difficult for me because the language is not my own.

In one of the committees of the Union we have been working in the past days to establish characteristic figures as an index of solar activity. Briefly explained, we give daily numbers in an empirical scale to represent the degree of activity of the sun's globe in order that the geophysicists may possibly find a correlation with terrestrial phenomena. Having my head full of these figures I began to dream that it would be certainly interesting, for our following generations to have some characteristic figures of the meeting of our Union.

It will not be necessary for us to try to establish at once these values, but we may begin to collect material for this purpose.

We go back then to Rome, six years ago, in an atmosphere still troubled by recent disturbances which had dispersed science and scientists. We were relatively few there, beginning a new scheme of which we were still in doubt as to whether or not it would work, though with a strong will to bring all astronomers of the world into a real international, universal co-operation.

I remember all the English delegation under the leadership of Prof. Fowler, then General Secretary of the Union, walking with great steps as in a Maratona race, from the railway station to Palazzo Corsini about 4 miles distant, because it was the first of May and no carriages were available on account of the strike of workmen who were celebrating that day. Then I recall our work together with the geodetic and geophysical Union in the austere palace, seat of the Accademia dei Lincei and of a famous museum, at the foot of the Gianicolo, not far from the Vatican. We come then three years later to Cambridge, with a larger number of astronomers, co-operation in the various branches of astronomy initiated and going on at full speed, an unforgettable reception in the heart and source of science,

in the places, colleges and laboratories that every one of us knew, but was glad to see with his own eyes, to touch with his own hand. Again three years later, in Holland, in Leiden, in one of the greatest homes of astronomical research and didactic centres. Referring to the characteristic figures of the sun we have been long discussing whether we had to take, of some of the sun's phenomena, the area or the brilliancy. We can see now what mistakes we would make in giving figures to the astronomical meetings which would take into account, as for the sun, a combined number for area and brilliancy. Holland, small in area, but with an intensity and brilliancy of scientific development greater than one might ever be led to expect, dating from the birth of the experimental methods down to the present epoch. Especially we Italians can judge of this development, remembering the time of the "Accademia del Cimento" and the great intellectual intercourse which was then going on between Holland and Italy. But this is not all: another great accomplishment has been attained in this meeting that we certainly will never forget in giving our characteristic figures. Some of you may remember that not long ago in the well-known American magazine of popular astronomy there was a series of articles dealing with fraternity in the world from the point of view of astronomers. No one better than these same astronomers is in a position to understand how it is possible to unite men above national differences, *in a supernationality* which is really what we look for when we speak of international co-operation.

"Credibile est illos pariter vitiisque locisque Altius humanis exseruisse caput," wrote Ovid twenty centuries ago speaking of the astronomers and we must prove worthy of these words and rise above human miseries in a perpetual fraternity which will bring us nearer to that creation which we study and worship. This meeting has now attained the aim which we all desired and which was advocated by our late Prof. Cerulli in his speech made six years ago in Rome. It must be unanimously agreed that this has been achieved mainly through the untiring efforts of our President, Prof. de Sitter. Mr President, let us hope that we may again meet in Holland under your leadership when the Zuiderzee will be a fertile land! In this atmosphere of peace, in this renewed spirit, with a larger number of astronomers of all nations, fruitful work has been done in the past days as you all well know. I am afraid there may not be the great discoveries that the Mayor of the city of Leiden prophesied, but we build little by little, the great edifice, the treasure-house of our knowledge, to which every one of us is proud to bring a stone.

In connection with this work will remain the vivid memory of a great, fraternal hospitality which will never fade from our hearts and for which we will feel gratitude during the rest of our lives. When we think of the beautiful days just past we understand, probably not quite fully, the amount of work which has been done, for the organisation of the social life of the meeting, by the Reception Committee of which we will never forget the President, Mr Reimeringen, the untiring Secretary, Dr Hins, the omnipresent treasurer, Mr Gerlings, Mr Modderman, who so beautifully arranged all our means of transportation, Mr van der Stok, second secretary, and then Mr Henny, who in the daily press has given so much intelligent attention to our meeting: this to remember briefly only the principal names.

Here again, in order properly to express with characteristic figures the pleasure and delight that we had, thanks to the Reception Committee, we must go right up to the "maximum" and will always remember the hospitality of the Muni-

cipality of Leiden in this Stadsgehoorzaal and at the Lakenhal Museum, and we hear again the words of welcome of the Mayor, Van de Sande Bakhuyzen, in this famous old city of history, science and art. Who will ever forget the officers of the St Jorisdoele in the Frans Hals Museum or the tunes of the organ magistrally played by Mr Robert in the Haarlem Cathedral, or the welcome of H.E. the Minister of Education, Dr Waszink, at the Reception of Her Majesty's Government in the "Ridderzaal"? And then from the solemn atmosphere of the Aula Magna of the Lugdunum Batavorum Academia where two *doctores honoris causa*, a French and a German astronomer, were elected, to the unexpected vision of all the charming *provinces* of Holland coming to welcome us in their attractive costumes. Crossing the Zuiderzee from Stavoren to Wieringen, we began to realize how much the vast reclaiming works meant to the future of the Netherlands.

Shall we ever forget how we have been received last night *cum virtute, concordia et fide* by the *Collegio Civitatis Academiae Supremo* and entertained with a pantagruelic dinner by the Reception Committee at the end of our meetings and how we all made a welcome retrograde jump in time?

If each were personally to express to our Hosts the gratitude he surely feels, the session would never adjourn; but for my part I cannot keep you any longer and must come to a conclusion by asking for an expression of our unanimous sentiments at the end of this third meeting of our Union. I am sure you will join me in standing up and acclaiming with one voice: *Long life to Her Majesty the Queen of Holland and to the Netherlands!*

Prof. CH. FABRY:

MESSIEURS,

J'ai, à mon tour, le grand plaisir et le grand honneur d'exprimer les remerciements de tous aux organisateurs de cette réunion.

Notre reconnaissance va d'abord au Professeur de Sitter, qui a eu la lourde tâche de présider l'Union astronomique pendant trois années, probablement les plus difficiles dans l'existence de cette Association. Il a réussi à éviter les écueils qui étaient semés sur notre route, et à nous conduire vers la voie qui, nous l'espérons, mènera à une situation définitive. En même temps que notre président, il a été ici l'organisateur de nos réunions, dont le souvenir est encore trop récent pour qu'il soit utile de le rappeler. En votre nom à tous je lui exprime toute notre reconnaissance.

On a, je crois, déjà remarqué que notre Union ressemble à une étoile variable du type antalgol, de période égale à 3 années, dans laquelle viennent de se manifester de petites variations dues à l'influence de l'occultation du soleil par la lune. Pendant la plus grande partie de la période, l'étoile n'est observable que pour les astronomes, qui suivent assidûment ses transformations; tous les trois ans, pendant 10 jours, elle devient visible à l'œil nu et brille d'un vif éclat. Je crois que la théorie de ces variables n'est pas encore définitive; pour notre étoile, pendant la période qui vient de finir, l'action et la volonté de Mr de Sitter explique la plus grande partie des phénomènes.

Nous devons aussi les plus vifs remerciements au Colonel Stratton, qui représente chez nous l'action continue et persistante pendant plusieurs périodes. Chacun de nous sait combien cette action a été bienfaisante, et combien elle a contribué au succès de nos réunions. Je lui exprime le plaisir que nous éprouvons tous à le voir conserver la lourde tâche de Secrétaire général.

Je ne puis citer ici les noms de tous ceux qui se sont employés à rendre notre séjour à Leiden à la fois agréable et utile. Notre horaire a été réglé avec la précision d'une éphéméride astronomique, mais aussi avec la distinction et le charme que l'on peut trouver seulement dans un pays de vieille civilisation. La plupart d'entre nous sont venus ici en étrangers; ils en partiront avec la plus vive admiration pour le pays où ils ont été si cordialement reçus et la plus vive reconnaissance pour leurs hôtes.

Messieurs, j'ai souvent constaté un certain scepticisme, chez les savants casaniers, pour les résultats de réunions comme les nôtres. Il m'est souvent arrivé, au retour, de m'entendre dire ironiquement à peu près ceci: "Vous venez d'une réunion où se trouvaient plusieurs centaines d'hommes de science éminents; je pense que, mettant en commun les lumières de tous, cette illustre assemblée a fait, en une semaine, quelque découverte sensationnelle?" Cette fois, si une telle question m'est posée, je n'hésiterai pas à répondre: Oui, nous avons fait une découverte qui intéresse non seulement les astronomes mais aussi tous les hommes de bonne volonté.

Nous avons découvert que des hommes de science de tous les pays pouvaient se réunir, discuter des questions qui les intéressent, et se séparer sans emporter d'autres sentiments qu'une estime réciproque et le souvenir de conversations courtoises et profitables pour tous. Nous savons que le résultat obtenu n'est pas encore définitif; c'est déjà beaucoup que d'avoir montré que des réunions vraiment internationales étaient possibles, non par des considérations théoriques plus ou moins incertaines, mais par la méthode expérimentale directe qui est celle des physiciens. Et cela montre, une fois de plus, quel profit les astronomes peuvent tirer de leur union avec les physiciens.

Si l'importante découverte que je viens de rappeler a pu être faite, c'est surtout au tact et à la bonne grâce de nos hôtes que nous le devons. Aussi est-ce encore par des remerciements à nos amis hollandais que je désire terminer. Parmi les qualités qui nous ont été utiles, les hollandais ont celles d'être de remarquables polyglottes; je vais mettre à une dure épreuve leurs connaissances linguistiques en prononçant quelques mots d'une langue très difficile et rarement parlée: la langue hollandaise prononcée par un français:

Ik zou tenslotte graag eenige woorden in Uw eigen taal zeggen:
Namens al Uw opgetogen gasten zeg ik hartelijk dank.

Prof. LUDENDORFF speaking on behalf of the visitors from eight countries, which did not as yet belong to the I.A.U., expressed their thanks to the President for his invitation and to the members of the Union for the very friendly reception that they had met with; they hoped that at the next gathering of the Union they might be present as members and not as guests.

Prof. SCHLESINGER:

Although the hour is late, I must take a minute of your time to say a word on behalf of the Executive Committee. Our heartfelt thanks are due to Dr de Vos van Steenwijk for his work in organizing the body of interpreters for the meetings of the Commissions, and to him especially and his fellow recorders for the efficient way in which they have helped in the work of translation.

You have paid tribute to Dr de Sitter for the way he has conducted these meetings. There is another side to his activities as President of which perhaps

only the members of the Executive Committee are fully aware. The past three years have been, as Monsieur Fabry has said, the most difficult in the history of the Union. We have all been greatly impressed with the way in which President de Sitter has led us during these years. He is always deeply interested in every branch of astronomy, and disinterested in every decision he has had to make. It has been a privilege to work with him. And now we have concluded the business of this third meeting of the Union, but before we leave this room I ask Dr de Sitter to say a last word to us.

Prof. DE SITTER:

LADIES AND GENTLEMEN,

My heart is really very full. You have praised me exorbitantly, and far beyond my merits. I accept that praise, not because I think I have done anything extraordinary, but because I know you mean it, which gives it its value. I am very grateful for the great sympathy and support that I have experienced from all of you during the meeting, and especially from my colleagues of the Executive Committee. It is hardly necessary to say that without the continuous help of the General Secretary, who came as near to omnipresence and omniscience as is possible for a human being, things would not have gone so smoothly as they did. I thank you all very heartily.