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## EL MENSAJERO

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## ESO'S EARLY HISTORY, 1953–1975

### I. STRIVING TOWARDS THE CONVENTION

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*L'astronomie est bien l'école de la patience.*

From a letter by A. Danjon to J.H. Oort, 21 September 1962.

#### A Historical Statement

On January 26, 1954 twelve leading astronomers from six European countries issued the historical statement we reproduce here [1]. It carries the signatures of Otto Heckmann and Albrecht Unsöld of the German Federal Republic, Paul Bourgeois from Belgium, André Couder and André Danjon from France, Roderick Redman from Great Britain, Jan Oort, Pieter Oosterhoff and Pieter van Rhijn from the Netherlands, and Bertil Lindblad, Knut Lundmark and Gunnar Malmquist from Sweden.

The statement (drafted by Danjon, Oosterhoff and Redman) expresses the wish that the scientific organizations in the respective home countries recommend to the authorities concerned, the establishment of a joint observatory in South Africa, equipped with a telescope of 3 metres aperture and a Schmidt telescope of 1.2 metres aperture. In the paragraphs preceding this expressed wish, they present the considerations that led them to this statement. Their wish would ultimately lead to the Con-

vention between five of these six countries – Great Britain went its own way – signed on 5 October 1962. By that time almost ten years had passed since the notion of a joint European observatory had been expressed for the first time. Another year and three months would have to elapse until the impatient hands of the astronomers would be free to lay the first solid foundations for the erection of the observatory. The date is January 17, 1964 when, with the completion of a series of parliamentary ratifications, not only the moral, but also the financial commitments of the respective governments had been ensured.

In this series of articles I shall first describe the developments of the first decade, that is the period preceding the signing of the Convention and the Ratifications, and, hopefully, next try to cover some of the later developments until the year 1975 when I passed on the General Directorate of the organization to my successor Lodewijk Woltjer.

The earliest decade was one of ups and downs – many downs! – in a struggle which may seem surprising to the present young generation of astronomers, and can be fully understood only when seen against the background of a damaged Europe, a decade only after devastating World War II. Traditional nationalism and mutual misgiving had to

be replaced by joint effort. As my colleague and friend Charles Fehrenbach used to say: "Il faut faire l'Europe." It also was a time at which some of the European countries had to deal with serious internal problems. Governments as well as astronomers had to face this. It is perhaps not surprising, then, that the first instigation towards the joint effort which would become ESO, had to come from one who, although rooted in European ancestry, had been an on-looker on European astronomy for many years from overseas: Walter Baade of the Mount Wilson and Palomar Observatories.

Baade, renowned expert on galactic and extragalactic research, had been invited by Oort to spend two months at Leiden Observatory in the spring of 1953, for lecturing and for collaborating in the preparation of a conference on galactic research to be held near

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#### TO ALL READERS

Please make sure that the card which accompanies this issue of the *Messenger* is returned, if you want to continue to receive the journal.

*The editors*

\* The author was Secretary of the ESO Committee (which preceded the Council) from May 1959 to February 1963, Scientific Director of ESO (part time) during the years 1968 and 1969, and Director General from January 1970 to January 1975. He was a Council member for the Netherlands during the years 1979 through 1982.

Les soussignés, astronomes appartenant aux pays ci-après désignés: Allemagne, Belgique, France, Grande Bretagne, Pays Bas, Suède, réunis à Leyde le 25 et 26 janvier 1954.

Considérant

Que l'astronomie occupe dans la science contemporaine une position essentielle et que diverses branches de la science qui ont récemment bénéficié de ses progrès sont appelées à en bénéficier encore dans l'avenir,

Que l'étude de l'hémisphère céleste austral est beaucoup moins avancée que celle de l'hémisphère boréal, la plupart des grands instruments étant situés dans l'hémisphère terrestre nord, en particulier ceux du Mont Palomar,

Que, par suite, les données sur lesquelles repose la connaissance de la Galaxie sont loin d'avoir la même valeur dans les diverses parties du ciel et qu'il est indispensable de les améliorer et de les compléter là où elles sont insuffisantes,

Que, notamment, il est hautement regrettable que, le noyau galactique du Sagittaire, la plupart des amas globulaires, les Nuages de Magellan, les systèmes extragalactiques de Fornax et de Sculptor, c'est-à-dire des systèmes qui n'ont pas d'équivalent dans l'hémisphère nord, soient presque inaccessibles aux plus grands instruments actuellement en service.

Qu'en conséquence, il n'y a pas de tâche plus urgente pour les astronomes que d'installer dans l'hémisphère austral de puissants instruments, comparables à ceux de l'hémisphère nord, notamment un télescope réflecteur d'au moins 3 m d'ouverture et une chambre de Schmidt de 1,20 m,

Mais que, d'autre part, faute de ressources suffisantes, aucun pays ne semble en mesure d'assurer l'élaboration et la réalisation d'un tel projet, que seule une coopération internationale permettrait de mener à bonne fin,

Que la participation à cette entreprise, de tous les pays adhérent à l'Union Astronomique Internationale, par exemple, entraînerait de grandes complications et qu'il paraît sage de limiter actuellement le nombre des participants à quelques pays voisins formant un groupe restreint,

Que ces pays de l'Europe occidentale, en s'associant pour la construction et le fonctionnement d'un observatoire commun situé en Afrique du Sud, ouvriraient aux astronomes européens un champ de recherches peu exploré et d'une grande richesse,

Que la participation à cette entreprise des six pays sus mentionnés paraît indispensable pour en assurer le succès,

Émettent le vœu

Que les organisations scientifiques représentatives de ces six pays recommandent aux autorités qualifiées la construction en Afrique du Sud d'un observatoire commun, doté, notamment, d'un télescope de 3 m d'ouverture et d'une chambre de Schmidt de 1,20 m.

Ont signé:

Prof. O. Heckmann  
Directeur de l'Observatoire de Hambourg

*O. Heckmann*

Prof. A. Unsöld  
Directeur de l'Observatoire de Kiel

*Albrecht Unsöld*

Dr. F. Bourgeois  
Directeur de l'Observatoire royal de Belgique

*F. Bourgeois*

Dr A. Couder  
Astronome de l'Observatoire de Paris

*A. Couder*

Prof. A. Danjon  
Directeur de l'Observatoire de Paris

*A. Danjon*

Prof. R. O. Redman  
Directeur de l'Observatoire de Cambridge

*R.O. Redman*

Prof. J. H. Oort  
Directeur de l'Observatoire de Leyde

*J.H. Oort*

Prof. P. Th. Costerhoff  
Astronome de l'Observatoire de Leyde

*P.Th. Costerhoff*

Prof. P. J. van Rhijn  
Directeur du Laboratoire Astronomique "Kapteyn"  
Groningue

*P.J. van Rhijn*

Prof. S. Lindblad  
Directeur de l'Observatoire de Stockholm

*S. Lindblad*

Prof. K. Lundmark  
Directeur de l'Observatoire de Lund

*K. Lundmark*

Prof. K. G. Malmquist  
Directeur de l'Observatoire d'Uppsala

*K.G. Malmquist*

On January 26, 1954 astronomers from six European countries gathered in the stately Senate Room of Leiden University for a discussion of the recently by Baade and Oort suggested joint European Observatory. Under the chairmanship of Bertil Lindblad of Saltsjöbaden they formulated and duly signed the statement reproduced here, meant to strengthen their efforts for government support in the respective countries.

# Setting Up the ESO Historical Archives

Now that ESO has reached the age and status at which interest in its early beginnings is growing, it is desirable to set up an organized system of documentation that should allow historical studies. For that reason, steps have been taken by the Director General to establish the ESO Historical Archives, henceforth to be abbreviated EHA. These archives are meant to serve two purposes:

- to form a natural framework for the incorporation and classification of documentation that may be relevant to the study of the history of ESO; and
- to provide students of ESO's history with the necessary basic references, accessible at the discretion of the ESO Directorate.

At this moment – fall 1988 – a beginning has been made with the creation of the EHA by means of some quite valuable collections of documentation, pertaining mostly to the earliest decades, that is from the year 1953. They originate from persons who have been intimately involved in the creation of the Organization. The origins and the nature of this documentation can be recognized in the global descriptions in the box ESO Historical Archives accompanying this note.

For the arrangement and numbering I have chosen a system which clearly shows the origin of the documents and which, moreover, has a structure allowing in a natural way the incorporation of additional documents without any manipulating. Eventually, a more sophisticated system may have to be introduced, but for the moment the present, simple one should suffice. The arrangement also allows the description of the documentation in the inventory to be done in as much detail as appears desirable.

This arrangement discriminates first of all between documentation originating from outside ESO, category I, and documents from within ESO, category II. As things stand at the moment, it would seem that category I will be the richer one. Within category I, I have discriminated according to the source of the documents: category I.A. refers to

## ESO HISTORICAL ARCHIVES

### Inventory per December 1988; Overall Contents

#### I. Documents received from outside ESO.

##### I.A. Archives J.H. Oort.

I.A.1. Documents donated by Oort to L. Woltjer, former Director General of ESO.

I.A.2. Documents donated by Oort to A. Blaauw around the year 1976 and transferred by him to ESO Historical Archives.

##### I.B. Archives J.H. Bannier.

Documents donated in 1987 to H. van der Laan by the Dutch organization ZWO for sponsoring scientific research, pertaining to the directorship of J.H. Bannier of this organization.

##### I.C. Archives A. Blaauw.

I.C.1. Documents pertaining to the Secretariat of the ESO Committee (which preceded the ESO Council) with the exclusion of those concerning the site-testing expeditions.

I.C.2. Documents pertaining to the Secretariat of the ESO Committee, concerning the site-testing expeditions.

I.C.3. Documents concerning the ESO Working Group for Buildings, 1963–1965.

I.C.4. Other documents before 1968.

I.C.5. Documents pertaining to the ESO Scientific Directorship, 1968–1969.

I.C.6. Documents pertaining to the ESO General Directorship, 1970 through 1974.

#### II. Documentation originating from inside ESO.

II.A. Documents from the file marked "ESO Allgemein", of the period 1961–1964.

documents originally belonging to J.H. Oort, category I.B. to those originating from the Dutch organization ZWO, category I.C. to documents transferred from my archives at the Kapteyn Laboratory at Groningen to the EHA. Clearly this arrangement invites extensions I.D., I.E., etc. for documents which, hopefully, may be received from other persons or agencies that were involved in the early history of ESO.

Within each of these categories, further subdivision introduces more and more refined classification. The first stages of these are indicated in the accompanying Inventory. Further ones are used in the more extensive descriptions of the EHA now in the making. As an illustration, let me mention the subdivision I.C.2.8. which pertains to the dealings of the Secretary of the ESO Committee (which preceded the ESO Council) with the Marseilles objective-prism radial velocity project as part of the site testing operations, and of which the subdivision I.C.2.8.a. contains the correspondence with Ch. Fehrenbach.

In connection with category II, it

should be mentioned that, of course, apart from the contents of this part of the EHA, there are in the ESO Headquarters (and perhaps also in Chile?) many documents of interest for the study of the ESO history which, however, still are part of the body of documentation occasionally used for the regular operation of ESO. Of particular significance appear to be the extensive files kept by the ESO Head of Administration, which contain virtually complete sets of the minutes of the ESO Council and its predecessor, the ESO Committee, minutes of Finance Committee, the series of Council-Meeting Documents, etc. Naturally, access to these documents is also at the discretion of the ESO Directorate. In my articles on the early history of ESO I refer to these documents as FHA (Files Head of Administration).

Finally, mention should be made of the collection of old photographs and slides belonging to the Photographic Department of ESO, which also are of historical interest, but still to be classified.

A. BLAAUW

(Continued from page 1)

Groningen from June 22 to 27 [2]. It was during this stay that, between Baade and Oort, the idea arose of a joint effort by some European countries with leadership in astronomy [3].

The suggestion was followed up by Oort immediately. At his invitation a group of astronomers discussed it on

June 21, 1953, the day before the Groningen conference [4]. They were Baade, Bourgeois, Danjon, Heckmann, Lindblad, Oort, Oosterhoff and myself. Most of them participated in the Groningen conference [5]. Also present on June 21 was J.H. Bannier, director of the Dutch national science foundation (ZWO) and at that time President of the

Council of CERN, the joint European effort in nuclear research. Over the years, the ESO effort would greatly benefit from Bannier's experience. The participants at the meeting represented five "continental" countries. After the meeting Sir Harold Spencer Jones, Astronomer Royal of Great Britain, and Richard Stoy of the Cape Observatory,



Photograph 1: *Walter Baade (left) in characteristic pose, talking to C. Schalén of Sweden.*<sup>1</sup>

both of whom also participated in the Groningen conference, were informed and contributed their views. It appears from the minutes of the June 21 meeting that Baade's ideas deeply influenced the discussions and, in fact, his proposal then made would become the nucleus of the "initial programme" formulated in article II.2 of the 1962 Convention. It is therefore interesting to report in some detail from these minutes.

Baade proposed as principal instruments a 120-inch reflector similar to that of Lick Observatory in combination with a 48-inch Schmidt telescope like the one on Mt Palomar. The fact that for both telescopes existing designs could be used and engineering problems had been solved would speed up the project. The southern hemisphere for the location of these instruments was an obvious choice for several reasons. At that time, several European observatories had their own limited facilities in the southern hemisphere, most of them on the premises of South African observatories, and extensions of these were under consideration. Belgium, the German Federal Republic, Ireland and Sweden participated in Harvard Observatory's Boyden Station at Bloemfontein; Leiden Observatory had its southern

station on the premises of the Union Observatory, first at Johannesburg and later at the field station at Hartebeespoortdam; British astronomy had close relations with South Africa through the Radcliffe Observatory at Pretoria and the Cape Observatory near Capetown. Rather than enlarging these facilities, one should pool resources and efforts and strive for equipment comparable in research power to that of the large Californian observatories that had for decades dominated observational astronomy. (All reflectors with aperture of 80 inch or more were located in the northern hemisphere [6].)

Moreover, some of the most interesting objects of research could be reached only from the southern hemisphere: the central parts of the Galaxy and the nearest extragalactic systems. Baade stressed the growing importance of extragalactic work and the fact that

only by means of a large telescope Europe might hope to join in it. In addition to the two instruments mentioned, the meeting proposed a meridian circle for the astrometric work that also was much needed in the southern hemisphere. That South Africa was envisaged for the location, was almost self-evident also because it had the best astronomical climate known at that time. The minutes of the meeting contain a provisional cost estimate. Capital investments were estimated at \$2.5 million, and annual running costs at \$100,000.—. These included salaries for 3 astronomers, 5 technical personnel, 3 night assistants and 3 administrative posts. Participants of the June 21 meeting were invited to discuss these plans with their colleagues at home.

The results of their deliberations were discussed at the meeting of January 1954 mentioned at the beginning of this article [7]. It was chaired by Bertil Lindblad and held in the stately Senate room of Leiden University, where portraits of scientists of Leiden's illustrious past, looking down on the participants, may have inspired their historical statement. The statement reflects the positive response they brought from their colleagues at home. The meeting decided to form an ESO Committee to carry the project further, consisting of Bourgeois (Belgium), Danjon (France), Heckmann (German Federal Republic), Spencer Jones (Great Britain), Oort (Netherlands) and Lindblad (Sweden). The suggestion was made that some intermediate size telescopes should be added to those mentioned earlier. An improved cost estimate was presented: capital investments should be 1.25 million pounds (then corresponding to about \$3.5 million), based on preliminary offers from European manufacturers, and an annual budget of 45,000 pounds (corresponding to about \$126,000). The project was



Photograph 2: *From left to right: V. Kourganoff (France), J.H. Oort (Netherlands), H. Spencer Jones (Great Britain).*

<sup>1</sup> The photographs accompanying this article were taken by the author during a boat trip on one of the days of the Groningen Conference in June, 1953, immediately after the idea of a joint European Observatory had been discussed for the first time by a group of astronomers at Leiden on June 21. Purpose of the trip were the reclamation operations in the area of the former Zuiderzee, now the domain of large, flourishing farms. All of the participants at the Leiden meeting joined in the boat trip, and the notion of a joint observatory must have been one of the hotter subjects.

envisaged to be realized over the next ten years. The meeting was aware that this financial support might be very hard to obtain from research councils or governments, but the suggestion was made that perhaps this might be facilitated if funds from private foundations or societies could be added. It was also realized that the project would need a convention between learned societies or between governments; the former was preferred (but would later have to be abandoned for the latter).

Next steps were taken at the Committee meeting of November 1954 in Paris, chaired by Oort, the principal subjects being the drafting of the convention and site testing in South Africa [8]. Beginning with this meeting, these two subjects determined the two main lines of the Committee's activity. Later on, a third would be added: the planning of the instrumentation. Of these three lines of activity of the first decade, we shall first follow developments leading to the Convention and Ratification, next describe the site testing expeditions, and subsequently the first planning of the instrumentation.

In these first years the Committee had no permanent President or Secretary. It met in various astronomical centres and usually was chaired by the host, for instance by Heckmann in Bergedorf and by Lindblad in Saltsjöbaden, until at the October 1957 meeting it made Oort its President and Bannier its Secretary and Treasurer. In May 1959 Blaauw succeeded Bannier as Secretary.

### Towards the Convention

A first proposal for the Convention, between organizations, was drafted for the November 1954 meeting by Bannier and Funke [9]. G. Funke, Director of the Swedish National Research Council, was, like Bannier, a member of the Council of CERN. Amendments were made to this draft, but on the whole the matter of the Convention proceeded slowly during the first years. Little of what happened within the participating countries filters through in the minutes of the Committee meetings, until in 1960 the matter comes into focus again. In its meeting of July of that year, held in Heidelberg, the ESO Committee discussed in detail a new draft; it still was one between organizations, but its author, Bannier, stressed the necessity of a convention between governments [10].

What had caused this change, and at the same time made the matter rather urgent, were the sharply increasing costs of the site testing expeditions in combination with plans for modest observational programmes which, apart from contributing to the site testing,



Photograph 3: O. Heckmann (left, German Federal Republic) in discussion with B.J. Bok (United States).

would produce scientific results. They will be discussed in the section on the testing programmes. Over the whole year 1959 and half of 1960 the total budget for the site testing and other expenses had been only \$ 32,346.—. For the following one year and a half, however, a total of \$ 363,000 had been estimated. Of this, France and Germany were supposed to contribute 1/3 each, and the three smaller continental countries about 1/9 each; the chances of Britain's participation having become quite small already at this stage. Whereas, so far, the financial resources had come from national science research councils or equivalent bodies on a year-to-year basis, these new estimates called for commitments at higher, government level.

The new draft was largely adapted from the Cern Convention. Although ESO is, of course, in essential aspects different from CERN, especially because it has its principal establishment, the observatory, outside Europe, its constitutional set-up, its financial basis and its personnel regulations have become very similar to those of CERN through this early adaptation of the CERN model. At the same time, this similarity has often led governments to appoint on the ESO Council the same delegates as on the CERN Council, resulting in similar policies.

Some features that have marked the drafts from the beginning are worth noting here: Every participating country would be represented on the ESO Council by two delegates, of which at least one should be an astronomer, and each member has equal vote – although in practice, of course, opinions of the largest countries carry strongest weight. Financial contributions are proportional to the national income but only up to a fixed limit, so that excessive domination

of one member is avoided. The convention also stated from the beginning that the observatory should be located in the southern hemisphere, no broader geographical choice was ever seriously considered. As to the equipment of the observatory, there is the first set-up with the large optical telescope and the Schmidt telescope referred to before, but this is called the initial programme and the Convention allows in principle extension with any kind of other instrumentation, whatever frequency domain of the electromagnetic spectrum it may cover.

What slowed down the signing of the Convention was not any serious disagreement concerning its contents, although there had been quarreling about details – the fact that CERN successfully operated on a very similar basis was helpful – but rather the fluctuating and sometimes very low expectation with regard to the governments' willingness to embark upon this project in times of sometimes deep financial problems. Naturally, in this respect there was a large difference between CERN and ESO: development of nuclear physics being a must in the post-war era for virtually every nation, in contrast to the apparent lack of usefulness of promotion of the study of the sky. An additional, serious drawback was the gradual withdrawal of Great Britain.

### Withdrawal of Great Britain

At the April 1956 meeting of the ESO Committee Great Britain was still represented by R.O. Redman and R.v.d.R. Woolley [11]. The latter succeeded Spencer Jones as Astronomer Royal in 1956. At the April 1957 meeting Redman was present, but after this, several years would elapse before a British astronomer appeared again. British interest



Photograph 4: From left to right: Mrs Mieke Oort (Netherlands), B. Strömrgren (Denmark) and B. Lindblad (Sweden).

turned towards a Commonwealth Observatory in Australia, in preference to the ESO project. However, the attitude was not univocal. Thus, in a letter of May 13, 1959 Redman informed Oort that there had been *"a rather unexpected swing of opinion among a number of astronomers and physicists in this country ---"* [12], and in July 1960, Sir William Hodge, Secretary of the Royal Society, wrote to Oort: *"You have no doubt heard that the British National Committee for Astronomy has been giving fresh consideration to the possibility of taking part in an international effort to construct a 120" telescope in the southern hemisphere ---"* [13].

Later that month, on the 27th, Woolley informed Oort more specifically: *"The British National Committee prefers participation in a Commonwealth telescope to participation in a European telescope, but would favour participation in a European telescope if it is not possible to organise a Commonwealth telescope. ---"* [14]. Moreover, Woolley stated, they *"--- would only favour support in any scheme if the result of the participation was an allocation of telescope time, proportional to share taken of the expenses --- and if the affairs of the Observatory --- were vested in the hands of a Council, on which voting strength was again proportional to the financial share borne by each nation."* Clearly, on these latter points British views diverged from those among the ESO partners. These points might have become the subject of further negotiations, but that stage was never reached.

In spite of the divergence between British and continental views and intents, British authorities were regularly kept informed on developments regarding ESO. They continued to be invited to

the meetings of the ESO Committee. It also happened through other channels, for instance in correspondence between Bannier and the Office of the Minister for Science at Whitehall, notably in an extensive letter by Bannier of February 3, 1961 [15]. At the January and June 1961 meetings of the ESO Committee Great Britain was represented again, by both Woolley and O.J. Eggen, and at the November 1961 meeting by A. Hunter. Meanwhile, another link had been established through which British astronomy was kept informed: the meetings of ESO's Instrumentation Committee were attended by a representative of the Astronomer Royal, first by O.J. Eggen, later by A. Hunter [16]. After 1961 no British representative attended the meetings of the ESO Committee any more.

### The Grant of the Ford Foundation

Whereas the withdrawal of Great Britain had seriously weakened the basis for the ESO project, there appeared at least one bright spot above the horizon. As mentioned before, the possibility of financial help from non-government funds was alluded to in an early stage. I remember – but this is not documented – that on the occasion of a visit to the southern Leiden Observatory Station in the 1950's, Oort explored the possibility of financial help from within South Africa, but that it failed because of lack of support from certain astronomical circles in the country. On the other hand, the case of ESO has much benefitted from a grant allocated by the Ford Foundation which has its seat in New York. This foundation was well known for its promotion of international collaboration on a world-wide scale.

After an early approach by Oort had not met positive reaction, a renewed application led to the Foundation's decision in October of the year 1959, to allocate a grant of one million dollars under certain conditions, the most important of which was, that at least four of the five nations still positively involved at that time, Belgium, France, the German Federal Republic, the Netherlands and Sweden, would sign the Convention [17]. This condition was in full harmony with what had become common understanding anyhow – that participation of four countries would be a minimal base for further pursuing the effort. In order to fully appreciate the significance of the Ford Foundation's grant, one should realize that at that time the estimate of the capital investment required for the establishment of the observatory used to be \$ 5 million [18]. The grant thus was equivalent to the average of the five countries' shares, and thereby had the character of pushing the project financially over the threshold in the case of stagnation of one of them. The amount also happened to cover approximately the cost of the mirror blank of the large telescope.

There can be little doubt that the grant has been most beneficial for bringing the negotiations between and within the countries mentioned to a successful end. A letter of Oort to Dr. C.W. Borgmann, Director of the Ford Foundation, of April 22, 1960 testifies to this in connection with the Dutch government's decision to participate [19], and so does Heckmann's account on the early ESO history in his introduction to the Annual Report of ESO for the year 1964 [20], as well as in his book *Sterne, Kosmos, Weltmodelle* [21]. The grant was transferred to ESO soon after the ratifications had been completed, on September 21, 1964 [22].

The history of the grant of the Ford Foundation has recently been the subject of an investigation by F.K. Edmondson. A summary, kindly offered by Dr. Edmondson for the *Messenger*, accompanies this article.

### Founding Fathers

The archival documents of the last years of the 1950's and the early 1960's reflect the extremely difficult political circumstances under which especially the French adherence had to be gained. This was the more serious because from the outset it had been agreed that the initiative for convening the representatives of the member states for the signing of the Convention – their ambassadors – should be with the French government [23]. Under the still delicate political circumstances of those years

this seemed natural from a diplomatic point of view. It is also to be understood in this context, that the basic text of the Convention should be the French one, particularly after the withdrawal of Great Britain [24].

Most of the French governments of those years were short-lived as a consequence of internal political division of the country, and on top of this, the Algerian independence movement made great demands on the successive cabinets from the year 1954 until independence was agreed in March 1962. The other major partner in the ESO effort, the German Federal Republic, went through its "economic miracle" in these years and seldom posed financial problems. Naturally, it was aware that a positive attitude with respect to matters of European integration should help bridge the cleavage caused by the war. In the smaller partner countries, however, post-war rebuilding programmes drew heavily on financial resources and made governments hesitant to commit themselves to a long-term financial obligation in astronomy.

Whereas the project was the subject of frequent consultation between many astronomers mutually and with their governments, there are three persons who, due to their key position, emerged as the principal spokesmen in the international discourse. They were: Jan H. Oort who as initiator and deeply convinced of the necessity of the project constantly strived for its realization; André Danjon of Paris, leading French astronomer and also strong supporter who had the difficult task of attaining his government's approval; and Otto Heckmann, one of the leading German astronomers, Director of the Hamburg Observatory and one of the strongest advocates of the project in his country. He would become ESO's first director. More in the background, but not to be forgotten, were such men as Bertil Lindblad (close to Oort by personal friendship and similarity of research interests), Charles Fehrenbach of Marseilles (close to Danjon), J.H. Bannier and G. Funke, to mention a few. Deeply interested in the developments was also Pol Swings of Liège, but a certain lack of communication between Belgian astronomical centres at that time has hampered Swings full involvement [25]. Without the growing mutual respect and friendship between the people mentioned here, the ESO project might not have surmounted the many obstacles on its way towards realization. The correspondence between these men (telephone and cable messages played only a minor role in these days) sometimes was of a strong personal nature and represents a touching "document humain". Not all letters

## The Ford Foundation and the European Southern Observatory

FRANK K. EDMONDSON, *Indiana University, U.S.A.*

The Ford Foundation supported projects around the world and expanded its activities to include science and engineering after Henry Heald became President of the Foundation in 1956. Carl Borgmann, President of the University of Vermont, was hired in 1958 to be the Director of the new Programme in Science and Engineering. Four large grants to support major astronomical programmes in the southern hemisphere were made during the period from late 1959 to early 1967. The Ford Foundation was restructured in March 1967 by Heald's successor, McGeorge Bundy, and the Programme in Science and Engineering was discontinued. Borgmann served as Advisor on Science and Technology until he retired in 1970.

Oort and Lindblad met with Heald and Borgmann on October 9, 1958 to discuss possible Ford Foundation support for the European Southern Observatory. Oort had written to the Ford Foundation in August 1956 but then received a negative reply. Little encouragement was given during the 1958 meeting, but a year later the Ford Foundation Board of Trustees approved an appropriation of \$ 1.0 million to be granted if three conditions were met. The first condition was that at least four of the five nations (Belgium, France, German Federal Republic, the Netherlands and Sweden) must sign the Convention to create ESO. The other two conditions were administrative. Borgmann wrote to Oort on October 2, 1959 to inform him about this action.

Shepard Stone, the Ford Foundation's Director of International Programmes, went to Paris three weeks after the \$ 1.0 million had been appropriated. He discussed the matter with Jean Monnet, the closest advisor to the Finance Minister, Pinay. Stone's personal friend Gaston Berger, who was Director of Higher Education, wrote in October 1959 a memorandum in French for Stone's signature. Monnet personally delivered it to Pinay, who presumably discussed it with De Gaulle. The French government decided to participate, and this was announced on June 28, 1960.

The \$ 1.0 million grant was paid in full on September 16, 1964. This grant was later used to buy the quartz blank for the 3.6-metre telescope.

The great importance of the \$ 1.0 million appropriation by the Ford Foundation cannot be overestimated. The Ford Foundation's promise of a \$ 1.0 million grant was the "catalytic agent", a term used in the Ford Foundation staff's recommendation, that persuaded the French government to join in creating ESO. Without it, ESO might never have been more than the dream of Baade and Oort.

The three other grants were: Yale-Columbia astrograph in Argentina, \$ 750,000 in 1960; CSIRO for Australian Radioheliograph, \$ 550,000 in 1962, and \$ 80,000 in 1966; AURA for half the cost of the Cerro Tololo 4-metre telescope, \$ 5,000,000 in 1967.

I wish to thank the Ford Foundation for giving me access to the archives for the four grants in Astronomy, and Eldon Jones and Ann Newhall for their assistance in using these archives.

are type-written, nearly all of Danjon's letters in the ESO Archive are hand-written.

Not all of these Founding Fathers have lived to see the dream realized. Walter Baade died already on 25 June 1960, and Bertil Lindblad on 25 June 1965, a little more than a year after the ratifications had been completed. André Danjon died on 21 April 1967, only shortly after ESO's first constructions on La Silla had begun.

### The Final Struggles

By the middle of 1957, the chances for approval of the project by the French government were very low. Summarizing a discussion with Heckmann on August 26 of that year, Danjon wrote that he feared opposition to the project by the Ministry of Finance [26]; it even seemed impossible to obtain funds for the site tests of the years 1957 and 1958. Danjon nevertheless thought that the project should be pursued, with France possibly joining at a later stage.

Under these circumstances, serious consideration was given to a German financial guarantee to save the project and yet retain broad international character [27]. The suggestion received support from the German astronomical community [28] and the meeting of the ESO Committee of October 1957 accordingly drafted alternative budgets for the cases with and without France [29]. The guarantee was not really effectuated, and the situation remained gloomy.

When the ESO Committee met in October/November 1958 in Uccle, there was no French representation; Danjon and Fehrenbach requested to be excused because their country seemed to be unable to help support the site testing [30]. The other countries decided to go on, but the situation underlined once more the urgency of arriving at the binding international contract between parties. It would take another year for chances to become better.

In a letter to Oort of 6 November 1959, Danjon could write: "*Enfin, le*

*mouvement est déclenché. ---*, after having received an invitation for a discussion between high officials of the Ministries of Sciences and Finances [31]. This move had very likely been prompted by the Ford Foundation grant of preceding October. In letters of 10 and 12 December, Danjon sounded quite optimistic about both the fundamental decision for participation and the financial prospects: *"J'ai en effet indiqué au gouvernement que, compte tenu de la Subvention Ford, la dépense des 5 pays de l'Europe Occidentale serait de 4 millions \$, à répartir sur 8 ans, et que, tant que d'autres pays n'auraient pas décidé de participer à la réalisation du projet, la France devrait en couvrir 1/3. --- J'attends avec impatience le retour du gouvernement, qui est à Dakar. J'espère que la décision officielle de la participation sera prise et que les invitations seront lancées. ---"* [32].

On January 12, 1960, Danjon wrote to Oort that the Prime Minister had issued letters to the Ministries of Finances and Foreign Affairs, and the ESO project was to be submitted to the coming Cabinet Council [33]. And *"La démission du Ministre de l'Education Nationale nous aura fait perdre 1 mois entier, mais maintenant, les choses en sont au point où seule, une crise du gouvernement pourrait les compromettre. ---"*. On February 1, Oort, not yet having heard from France, enquired discretely whether the Dutch Ministry of Foreign Affairs might now expect soon to be approached [34], and he may have drawn hope from Danjon's message that Dr. Sheppard Stone, Director of International Affairs of the Ford Foundation, one of these days would take up the matter of ESO with the new French Minister of Education [35]. But then, when by the end of the month Oort has not yet heard the good news, the correspondence between the two friends takes a dramatic turn. On March 1, Oort writes to Danjon [36]:

*"Mon cher ami,*

*Je viens de passer une demie nuit sans sommeil avec mes soucis concernant l'ESO. La responsabilité pour ce projet pèse un peu lourd. --- Pourquoi est-ce qu'on nous fait tant attendre? Votre ministre ayant pris la décision de principe, pourquoi ne peut-on pas prendre aussi la décision ferme de participer, de sorte que nous puissions commencer? --- Vous comprendrez sans doute que je m'inquiète et que je commence à perdre le courage. --- Je regrette, mon cher ami, que je dois ainsi vous faire part de mes soucis. ---"*

In reply, Danjon immediately writes, on March 3, 1960 an unusually long letter which seems so well to describe the situation that I like to quote it in full [37]:

*"Mon cher ami,*

*Croyez bien que je partage votre inquiétude et que je ressens vivement la responsabilité de la France dans les ajournements successifs du projet. J'ai été tenté plus d'une fois de vous écrire que je renonçais à m'en occuper, mais je suis persuadé que votre tâche ne serait pas facilitée par le retrait de la France, lequel entraînerait d'autres. Quant à faire des démarches, il m'est impossible de m'y consacrer plus que je ne le fais. Au mois de décembre, j'ai vu une dizaine de fois une personne du Cabinet du Ministre, qui avait tout préparé pour que l'affaire soit soumise au Conseil des Ministres. Mais M. Boulloche, le Ministre de l'E.N. [Education Nationale] a donné sa démission vers Noël, pour des raisons de politique intérieure. D'autres motifs ont déterminé le départ du Ministre des Finances et retardé la désignation du nouveau ministre de l'Education. Alas est survenue la révolution d'Alger dont vous n'avez peut-être pas évalué les répercussions sur la vie publique en France. Le nouveau ministre, M. Joxe, que je connais bien, n'a pas pris ses fonctions immédiatement, car il était engagé dans de difficiles négociations avec les républiques noires d'Afrique. Il n'y a guère plus de 3 semaines qu'il a constitué son cabinet. Or il a à résoudre les problèmes insolubles qui ont causé la démission de son prédécesseur! Cependant, au cours de l'intérim, j'ai pu obtenir que le Premier Ministre écrive aux Affaires Etrangères et aux Finances. J'ai vu le Ministre vendredi 26 février. Dès le 8 février, j'avais fait rechercher le dossier de l'ESO, et M. Berger en avait entretenu le Ministre. Je suis retourné au Ministère les 29 février et 2 mars, pour prendre contact avec un membre du cabinet qui venait de recevoir le dossier. Il fallait l'informer de l'affaire, toute nouvelle pour lui. Ce matin, j'ai eu une autre conversation avec M. Piganiol. A tous, j'ai affirmé la nécessité pour la France de prendre une décision.*

*Croyez-vous que j'aurais pu faire davantage? Toute personne approchant du gouvernement se rend bien compte qu'il est obsédé par l'Afrique du Nord et non par l'Afrique du Sud. Soyez assuré, mon cher ami, de ma constante et fidèle amitié,*

*A. Danjon"*

From letters of Fehrenbach and Danjon in the months following, it appears that, while a decision in principle by the French authorities had been taken, executive action was further delayed by the instabilities within the government. Towards the middle of the year 1960 Danjon wrote to Oort: *"--- La lourde machine administrative --- dépend de 4 ministères dont 3 ont changé depuis le début de l'année! J'ai l'impression d'être*

*condamné à rouler le rocher de Sisyphe pour l'éternité! Mais j'ai tout de même très bon espoir."* [38].

About that time, in correspondence between Oort and Heckmann preparing for the Committee meeting of July 15, 16, 1960, the possibility of German advance financing was taken up again, combined with a Dutch initiative for convening the five governments [39], but this did not appear to open promising perspectives. However, towards the end of the year 1960 French authorities occupied themselves with the formulation of the text of the Convention, and of the Financial Protocol that belongs to it, so that these texts could be discussed at the meetings of the ESO Committee and presented to the Foreign Ministries of the partner countries [40].

Further delay was then caused by difficulties in arriving at an acceptable text of the German version of the Convention. Towards the end of 1961 it was the general impression that universal agreement had been reached, but then unexpectedly a new dispute arose between German and French officials on the interpretation of the Convention text concerning the distribution of the contributions of the member states. By the end of March 1962 Heckmann had also removed this obstacle [41]. At the June 1962 meeting of the ESO Committee in Bruges, Belgium, it could be announced that the date for the signing was approaching. And on September 21, 1962 Danjon wrote to Oort [42]:

*"Mon cher ami,*

*Les Affaires Etrangères ont fixé au 5 octobre la signature de la Convention. Enfin! --- Je ne saurais vous dire combien je suis heureux de voir enfin prendre corps votre grand projet. Mais il aura fallu plus de dix ans! L'astronomie est bien l'école de la patience. ---"*

The Convention was indeed signed on that date, at the Ministry of Foreign Affairs in Paris, for the foreign countries by their ambassadors and for France by the Secretary-General of the Ministry of Foreign Affairs. That same date, Danjon wrote to Heckmann [43]:

*"Mon cher Collègue,*

*Un mot seulement, pour vous confirmer que les représentants des 5 pays ont signé la Convention aujourd'hui à Midi! Alleluia!*

*Bien cordialement votre A. Danjon"*

After this memorable event, it would still take more than one year before the Convention would be ratified and thus governments could assume financial commitments. As it is stated in the Convention, this situation would be reached when at least four of the governments had ratified and, moreover, these four would represent at least 70% of the total of the contributions. This implied

## LIST OF MEETINGS OF THE ESO COMMITTEE (PRECEDING THE ESO COUNCIL)

| No. | Date                  | Place                   | Chairman     | Minutes made by:        | Reference in ESO Hist. Archives |
|-----|-----------------------|-------------------------|--------------|-------------------------|---------------------------------|
| 1   | 1953 June 21          | Leiden                  | J.H. Oort    | P. Th. Oosterhoff       | I.A.1.1.                        |
| 2   | 1954 January 25–27    | Leiden                  | B. Lindblad  | P. Th. Oosterhoff       | I.A.1.1.                        |
| 3   | 1954 November 8–9     | Paris                   | J.H. Oort    | P. Th. Oosterhoff       | See FHA*                        |
| 4   | 1956 April 20–21      | Bergedorf               | O. Heckmann  | W. Fricke + O. Heckmann | I.A.1.3.                        |
| 5   | 1956 October 15–16    | Saltsjöbaden            | B. Lindblad  | P. Th. Oosterhoff       | I.A.1.4.                        |
| 6   | 1957 April 1–2        | Uccle                   | P. Bourgeois | B. G. Hooghoudt         | See FHA*                        |
| 7   | 1957 October 28–29    | Leiden                  | J.H. Oort    | J.H. Bannier            | I.A.1.6.                        |
| 8   | 1958 July 23–24       | Paris                   | J.H. Oort    | J.H. Bannier            | I.A.1.7.                        |
| 9   | 1958 Oct. 31 – Nov. 1 | Uccle                   | J.H. Oort    | J.H. Bannier            | I.A.1.8.                        |
| 10  | 1959 May 29–30        | Noordwijk a/Zee (Neth.) | J.H. Oort    | A. Blaauw               | I.A.1.9.                        |
| 11  | 1959 July 4           | Paris                   | J.H. Oort    | A. Blaauw               | I.A.1.10.                       |
| 12  | 1960 July 15–16       | Heidelberg              | J.H. Oort    | A. Blaauw               | I.A.1.11.                       |
| 13  | 1961 January 3–4      | Paris                   | J.H. Oort    | A. Blaauw               | I.A.1.12., 13.                  |
| 14  | 1961 June 12–13       | Tübingen                | J.H. Oort    | A. Blaauw               | I.A.1.14.                       |
| 15  | 1961 November 6–7     | Paris                   | J.H. Oort    | A. Blaauw               | I.A.1.15.                       |
| 16  | 1962 March 5–6        | Paris                   | J.H. Oort    | A. Blaauw               | I.A.1.16.                       |
| 17  | 1962 June 18–19       | Bruges                  | J.H. Oort    | A. Blaauw               | I.A.1.17.                       |
| 18  | 1962 October 19–20    | Stockholm               | J.H. Oort    | A. Blaauw               | I.A.1.18.                       |
| 19  | 1963 February 5–7     | CERN, Geneva            | J.H. Oort    | O. Heckmann             | I.A.1.19.                       |
| 20  | 1963 July 23–24       | Amsterdam               | J.H. Oort    | O. Heckmann             | I.A.1.20.                       |
| 21  | 1963 November 15      | Bonn                    | J.H. Oort    | J. Ramberg              | I.A.1.21.                       |

\* FHA = Files Head of Administration of ESO.

that in any case France and the Federal Republic of Germany should be included. It was accomplished when France ratified on 17 January 1964 [44]; the Netherlands had ratified on 21 March 1963 [45], Sweden on 4 November 1963 [46], and the German Federal Republic on 10 November 1963 [47].

So, then, from early 1964 on, ESO was on solid grounds and could begin realizing its long-term building project. It would within a few years do so on an even broader base, after Belgium had ratified on 2 October 1967 [48] and a sixth member, Denmark, had even done so a little earlier, on 23 August 1967 [49]. But before we enter this new phase, we hope to describe, in the following article, what meanwhile had been accomplished in the search for the site of the Observatory and in the preparations for its instrumentation.

### References and Notes

Abbreviations used:

EHA = ESO Historical Archives. The numbers following EHA identify the (folder containing the) archival document according to the inventory explained in the separate box accompanying this article.

ECM = ESO Committee Meeting. The meetings of this Committee, which preceded the ESO Council, are listed in a separate box accompanying this article.

Heckmann Sterne = O. Heckmann, *Sterne, Kosmos, Weltmodelle*, Verlag Piper & Co, München, Zürich, 1976.

FHA = Files belonging to the Office of the Head of Administration of ESO.

- [1] For the text with authentic signatures, see EHA-I.A.1.1.
- [2] See EHA-I.B.1. for correspondence between Oort and the Dutch funding organization ZWO in preparation of Baade's stay.
- [3] I well remember Jan Oort one day entering my office – opposite to his at Leiden Observatory – to share with me his excitement about the idea!
- [4] The Memorandum on this meeting, later called ECM No. 1, is in the FHA; a copy of it in EHA-I.A.1.1.
- [5] For a report on the Conference see IAU Symp. No. 1, 1955, ed. A. Blaauw.
- [6] For the distribution of observatories in geographic latitude in 1954, see R. Coutrez and L. Bossey in *Ann. de l'Obs. R. de Belgique*, 3<sup>e</sup> Ser., Tome VI, 1954, quoted in J.H. Oort, *ICSU Review*, Vol. 3, No. 1, 1961.
- [7] ECM No. 2, Minutes ("Memorandum") in EHA-I.A.1.1.
- [8] Memorandum on this meeting (ECM No. 3) is in the FHA; a copy of it in EHA-I.A.1.2.
- [9] A copy of this draft Convention is in EHA-I.A.1.2. It is marked "1st draft of Bannier and Funke" (in Dutch) in Oort's handwriting.
- [10] A copy of this draft is in EHA-I.A.1.11., with accompanying letter from Bannier to Blaauw.
- [11] Minutes in EHA-I.A.1.3. [12] EHA-I.C.1.1.g. [13] See ref. 12. [14] See ref. 12. [15] See ref. 12.
- [16] According to a letter of Blaauw to Hunter, EHA-I.C.1.1.g.
- [17] See letter of C.W. Borgmann, Director Ford Foundation, to J.H. Oort of October 2, 1959 in EHA-I.C.1.3.
- [18] See, for instance, Minutes of ECM No. 6, in FHA; a copy of it is in EHA-I.A.1.5.
- [19] In EHA-I.C.1.1.c.
- [20] page 6 of English version.
- [21] Heckmann Sterne, p. 265, 266.
- [22] *ESO Annual Report* 1964, p. 6.
- [23] Minutes ECM No. 12, p. 3 in EHA-I.A.1.11. [24] See ref. 23.
- [25] See, for instance, correspondence between Swings and Blaauw in March–April, 1961, 1961 in EHA-I.C.1.1.a.
- [26] EHA-I.C.1.1.c.
- [27] See Oort's report in a discussion by the Netherlands Astron. Council on 24 Sept. 1957, in EHA-I.C.1.1.c.
- [28] See ref. 27.
- [29] Minutes ECM No. 7, p. 8 in EHA-I.A.1.6.
- [30] Minutes ECM No. 9, p. 1 in EHA-I.A.1.8.
- [31] See EHA-I.C.1.1.c. [32] See ref. 31. [33] See ref. 31. [34] See ref. 31.
- [35] See letter by Oort to Heckmann of 13 February 1960 in EHA-I.C.1.1.d.
- [36] See EHA-I.C.1.1.c. [37] See ref. 36.
- [38] Undated copy in EHA-I.C.1.1.c.
- [39] See correspondence between Oort and Heckmann in May, June 1960, in EHA-I.C.1.1.d.
- [40] Undated letter of Oort to ESO Comm; January 1961? In EHA-I.C.1.1.c.
- [41] See correspondence between Oort and Heckmann in January–March, 1962, in EHA-I.C.1.1.d.
- [42] In EHA-I.A.2.5.
- [43] Heckmann Sterne, p. 267.
- [44] Circular letter by Fehrenbach of 23 January 1964 in EHA-I.C.1.1.f.
- [45] Circular letter by Bannier of March 27, 1963 in EHA-I.C.1.1.f.
- [46] Communication by the Dutch Ministry of Foreign Affairs of January 6, 1964 in EHA-I.A.2.5.
- [47] See ref. 46.
- [48] Communication Dutch Ministry of Foreign Affairs of May 9, 1968 in EHA-I.A.2.5.
- [49] See ref. 48.