

Astronomy and Astrophysics: a European Journal, its History and Present Status

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Introduction

Few sciences have profited so much from international contacts and collaboration as does astronomy. In fact, such collaboration has long been an essential element in the progress of astronomical research. Large international collaborative observational programmes have been carried out for more than a century. The important role which the International Astronomical Union plays in astronomical scientific activity is another characteristic feature.

It is therefore not surprising that a need also arose for an international medium of publication in astronomy and it is gratifying that efforts to this end have led to a successful enterprise: the journal *Astronomy and Astrophysics*. The following is a brief narrative of what preceded this creation and an account of the present status and organization of this journal. In several respects this account may be of interest also to physicists, as an example of fully international enterprise in the field of scientific publication.

On April 8, 1968 a number of leading astronomers from Belgium, Denmark, France, the Federal Republic of Germany, and the Netherlands met at Leiden Observatory to prepare a possible merging of some of the principal existing astronomical journals. The meeting had been convened by S.R. Pottasch of the Kapteyn Laboratory at Groningen. It can, in retrospect, be regarded as the most important milestone on the road to the establishment of the journal *Astronomy and Astrophysics*, usually abbreviated as «A and A». Its first issue appeared on January 1, 1969 and by now, middle 1975, 41 volumes have appeared with an average of about 500 pages per volume. On January 1, 1970 an additional, related, series appeared: the *Astronomy and Astrophysics Supplement Series* of which by now 21 volumes with an average of 300 to 400 pages have appeared. It can be said that both the journal A and A and its Supplement Series, have acquired a prominent place among the few leading astronomical journals of the world.

A and A as well as its Supplement Series carry since their creation the subtitle «A European Journal». This subtitle reflects both the circum-

stances leading to the creation of the journal and its basic aim.

Early developments

Five journals merged on 1st January 1969 into the new A and A. They were: *Annales d'Astrophysique*, founded in 1938

Bulletin Astronomique, founded in 1884

Bulletin of the Astronomical Institutes of the Netherlands, founded in 1921

Journal des Observateurs, founded in 1915 and

Zeitschrift für Astrophysik, founded in 1930

To these was added later,

Arkiv för Astronomi, founded in 1948.

Each of these had been a journal of long standing, most of them occupying a prominent place among the astronomical publication media. Yet, many astronomers of the countries involved shared the conviction that astronomical research would benefit from a joint, new, publication. It was argued that only on international bases could the proper refereeing system be established which was required to raise the standard of the contents and presentation to the desired level, with at the same time a considerable widening of the circulation and more rapid publication. Also, in a way, this development could be regarded as a natural step in an evolution in which, initially, journals (like *Ann. d'Astrophys.*, *BAN*, and *Z. Astrophys.*) had to a certain extent substituted and supplemented on a national basis the still older individual observatory publications, and the next step was a development toward the still wider base of a common, international enterprise. Comparison of the scientific level of the journals in Europe with that of leading journals outside Europe: *Astrophysical Journal* and *Astronomical Journal*, prompted the merger.

The merging journals were all "continental European". No need was felt at that time to include in the merger existing journals from outside western Europe — the task of merging on the limited geographical basis of the 6 journals mentioned was already enough of a challenge. On the other hand, the obvious exception was the non-inclusion of the *British Monthly Notices of the Royal Astronomical*

Society. This was however, the result of a thorough study by British astronomers of the proposition for merger; it led to a negative decision of the Council of the RAS at their meeting of Friday 13 October 1967.

In the years preceding 1968, extensive consultations, internationally and nationally, had taken place among many groups. It was no small step, to decide to give up a national journal of high standing, identified by the scientific world at large with the accomplishment in astronomy in a given country. Moreover, some of these journals had already achieved a distinct international character as far as their authorship was concerned albeit that editorial and publishing management were determined in a particular country.

The nature of the new journal

The resolutions adopted by the April 1968 gathering essentially defined the nature of the new journal and its Supplement Series as these have been realized since. The principal decisions were the following. The main policy-making body for the new journal should be a Board of Directors, consisting mainly of senior astronomers representing the sponsoring national organizations. This Board should be the owner of the journal, including the title, with a private publisher acting as agent for the Board. The Board should elect and appoint the editor(s)-in-chief and appoint an Editorial Board whose task it is to assist the editor(s). The preferred language should be English, with French and German also acceptable. Articles might be submitted by citizens of any country; acceptance depending solely on the scientific quality. Any country desiring to join the sponsorship for the journal might apply for this to the Board of Directors. This Board should fix the number of representatives of the new member state and the financial contributions. The main journal — as distinct from the Supplement Series — should contain mainly, but not exclusively, original articles; for instance, there should be room for review papers. It should also include a section *Research Notes*. Every article would have to be evaluated by a competent referee and no article should be rejected unless two referees recommend to do

so. The Supplement Series should have its special co-editor responsible primarily for the technical supervision; for it, production at one of the observatories was foreseen rather than by a private publisher. This series was to contain first of all articles containing extensive observational material in the form of tables or graphs, abstracts of which were to be published in the main journal. Only minor modifications with regard to the character of the journal have been introduced since. These include the introduction of a Letters Section.

Legal aspects; role of ESO

For entering into a contractual agreement with the publishing agent, as well as for other reasons, a legal status for the Board would have been required — the accomplishment of which for an international organization would, however, have been a time-consuming and somewhat complicated affair. An alternative and rather obvious solution was therefore preferred: making use of the legal status of the European Southern Observatory, whose aims as an organization for the promotion of a joint astronomical programme were so similar to those of the Board of Directors.

An agreement between ESO and the Board was concluded in July 1968 at Brussels. It resulted in ESO's willingness to assist the Board in several important respects, particularly its readiness to act on behalf of the Board in contractual matters and in making available to the Board its legal and administrative services, however, with the restriction that ESO would not commit itself with regard to any direct financial sponsorship for the journal. In return, the Board agreed to include among its membership a representative from ESO. In fact, the narrow relationship that has grown has sometimes created the impression that the journal is an ESO publication, yet in reality the journal is basically an entirely independent enterprise.

Establishing the journal

Many fast moves had to be made after the basic decision was arrived at in the middle of 1968 to ensure that the new journal should indeed appear on the target date of January 1, 1969. The Board of Directors defined its terms of reference and constituted itself, in agreement with the ESO council, and initially consisted of: one representative from Belgium, four from France, four from the Federal Republic of Germany, two from the Netherlands, two from the Scandinavian countries and one from ESO.

They appointed S.R. Pottasch and J.L. Steinberg as editors-in-chief for the three-year period 1969-1972 with editorial offices at Groningen and Paris, and confirmed the appointment of a Board of Editors including 37 names from European as well as overseas astronomers. A most important subsequent decision was, of course, the choice of the publishing agency: after thorough studies of various offers a contract was signed with Springer Verlag at Heidelberg based on the principles set out before. The first issue appeared on January 7, 1969.

As a next step, the Supplement Series was established; its first issue appeared in January 1970. It was produced at Leiden Observatory under the managing editorship of L.L.E. Braes with the technical assistance of H. Kleibrink and under the general editorial supervision of S.R. Pottasch. The editor J.L. Steinberg supervised the direct relation of the journal to Springer Verlag.

In the year 1969, 3 volumes of 500 pages of the main journal appeared, and 6 in 1970. Of the Supplement Series, 2½ volumes of 350 pages appeared in 1970. Both grew considerably in size in subsequent years.

Present status

a) *Membership.* Since these initial moves, several countries have joined in the sponsorship, so that the membership of the Board of Directors now includes Belgium, Denmark, France, the Federal Republic of Germany, Greece, Italy, the Netherlands, Norway, Sweden and Switzerland. In each of these, a national organization sponsors the project and appoints the delegates. For instance, this is done in France by the CNRS and in the FRG by the Rat Westdeutscher Sternwarten; the Scandinavian countries act through a joint organization.

b) *The terms of reference* for the Board as adopted in their meeting of December 2, 1968, specify, in the principal articles, the Board's responsibilities with regard to scientific control and the appointment of the Editors and the Co-Editors; its responsibilities for meeting the financial needs of the journal and for supervising the contracts with the publishers; the Board members' terms of appointment and the terms of office for the Officers, etc. With regard to the financial contributions of the sponsoring countries to the Board's budget, it is specified that these shall be proportional to the national incomes of these countries, to be calculated by the same formula as used

by ESO (which, in practice, means that OECD data are used).

c) *The editorship.* The editors-in-chief of the main journal, S.R. Pottasch and J.L. Steinberg, were appointed for three-year periods, naturally with the possibility of continuation. J.L. Steinberg after four years of office resigned and transferred his task to J. Heidmann of the Observatory of Meudon. At the present moment, S.R. Pottasch is transferring his task to H.H. Voigt of the Göttingen Observatory who by the end of the year 1975 will have taken over entirely.

d) *The Supplement Series.* The initial managing editor for the Supplements L.L.E. Braes was succeeded in 1971 by B. Hauck at the Astronomical Institute of Lausanne and Geneva Observatory, starting with volume 4. Under his direction the technical preparation of the Supplements was assigned to Imprimeries Réunies, Lausanne.

e) *Financial aspects.* The subscription price of the main journal for institutions is fixed by the current 5-year contract with the publishing agent. The contract includes rules for adapting the subscription price to inflationary trends by referring to OECD cost-of-living index data for the country where the publisher is located. Administration and collection of these subscriptions is purely an affair of the publishing agent.

On the other hand, the editorial offices of the editors-in-chief have a separate budget, with expenses for secretarial assistance, for the handling and mailing of manuscripts, etc. These expenses are covered partly by page charges and partly by contributions from the sponsoring organizations. In the course of the years the trend has been more and more towards a self-supporting status of the journal, so that the contributions to the budget by the sponsoring organizations have been gradually diminishing if corrected for inflation. In the initial stages of the journal, however, these contributions have essentially helped to give the journal its independent status. Page charges for the journal are levied only for articles submitted by institutes outside the sponsoring countries. The administration of these page charges, as well as that of the sponsors' contributions and related affairs, is entirely carried out at the Hamburg office of ESO, under the professional supervision of their Head of Administration, but by personnel paid from the journal's budget.

For the Supplement Series, there is also a subscription price for institutions and page charges for authors

not belonging to European institutes, but here the administration of both the subscriptions and the page charges are handled by the journal's administrative personnel at the ESO office, naturally in close coordination with the services of the managing editor.

f) *The personal subscriptions.* From the outset it has been felt that apart from the institute subscriptions there should be the possibility for subscriptions by individual astronomers at a considerably reduced rate. This idea has been rigorously pursued and a category of personal subscribers established, who pay only DM 80.— per year plus postage and handling for the currently 8 volumes of 500 pages per year. Clearly, this price does not even meet the cost of production of these extra copies. The arrangement could be reached only, thanks to the collaborative attitude of Springer Verlag and the support from the sponsoring organizations. In the contract with the former, a limit has been fixed, so that the total number

of personal subscribers shall not exceed a certain fraction of the number of institute subscriptions. Also, to avoid abuse, a personal subscription can be entered only by a person who certifies to be associated with an institute that has an institute subscription. Personal subscribers to the main journal receive the Supplements free of charge if they are willing to pay for the mailing and handling costs.

The administration of the personal subscriptions is handled for the main journal by the office at ESO and for the Supplements by the office of its editor in coordination with the office at ESO.

g) *Editors' reports.* Reports on the work of the editors are presented annually at the meetings of the Board of Directors at which they form the principal items of discussion, often leading to interesting deliberations on the policy of scientific publication in general and its evolution with a view to the future. These meetings are attended also by representatives of the publishing agent of the main

journal. Among the editors' most recent items of reporting (at the meeting of 12 February 1975) was the summary of the distribution of the authorship of the articles over the various countries reproduced in the accompanying table. It appears that the authorship has, indeed, reached a world-wide character albeit with a clear European flavour.

Countries of origin of the published articles

	1973	1974
France	13.6	15.0
Germany	10.5	12.6
Netherlands	6.6	5.0
Belgium	2.3	1.8
Scandinavia	1.7	4.3
Switzerland	1.4	1.2
Italy	4.0	6.5
England	4.1	3.2
USA + Canada	12.9	11.9
South America	1.6	2.2
Other	5.1	7.9
Share of sponsoring countries	63 %	66 %

High Energy and Particle Physics Conference

Palermo, Italy, 23-28 June 1975

Six hundred high energy physicists met in Palermo for the International Conference on High Energy Physics, organized by the High Energy and Particle Physics Division of the European Physical Society. It was an intense and inspiring week, an important and welcome occasion for high energy physicists to try and assess the present achievements and future perspectives of this very rapidly developing field of physics.

Chaired by Antonino Zichichi, the Conference presented the novelty of the almost complete suppression of parallel sessions. This was generally regarded as a definite step in improving the quality of Conferences of this kind, turning them into an occasion for the community of high energy physicists at large to focus on the many different facets of the broad problematics which characterize high energy physics today.

Undoubtedly the Conference was dominated by the discovery of the new particles. Ting (MIT), one of the discoverers of what are now called the J/ψ particles, reported on the rapidly accumulating knowledge on these particles in high energy processes not involving electron-positron annihilation. It is in e^+e^- annihilation, however, that the J/ψ 's have been

studied in most detail: Lüth (SLAC) presented the important and impressive results obtained at SPEAR, while Wolf (DESY) discussed the results so far obtained at DORIS, and finally Monacelli (Rome) reviewed the efforts made at ADONE to get a picture of the relevant parameters of the 3.1 GeV particle, which as is well known, is just on the border of their energy range. Everybody seemed impressed about the richness and the quality of the experimental information which has been gathered on the new particles, a bare six months after their discovery.

Coming to more usual physics, Feldman (SLAC) presented the new results on the total cross section for e^+e^- annihilation into hadrons and some interesting effects related to the strong beam polarization. A strong indication that there is some new interesting physics in lepton nucleon deep inelastic scattering was reported by Chen (U. of Michigan), who showed that the simple scaling laws discovered at SLAC seven years ago are violated at the higher FNAL energies. The message that something new is also showing up in high energy neutrino interactions was spelled out clearly in the talks by Rubbia (CERN-Harvard) and Cline (U. of Wisconsin). They re-

ported evidence of new phenomena (μ -pairs, bumps in the hadronic energy and neutrino energy loss distributions) occurring above 30 GeV, suggesting the opening of a threshold.

On purely hadronic interactions no slackening of activity could be detected, quite the contrary. New data on total cross sections, diffractive slopes and double diffractive production have enriched our knowledge of high energy hadronic collisions, and correspondingly narrowed the possibilities for the theoretical models to account for the data. Another scaling law (Feynman's for one particle distributions) is among the casualties of this conference, a product of the vigorous ISR experimental programme at CERN, as reported by Duff (UCL). The fascinating phenomena of particle production at large transverse momenta was reviewed in a talk by Darriulat (CERN). According to the speaker one begins to unravel a certain typical jetlike structure in the final states, which suggests the presence of simple and pointlike hadronic constituents.

Some new results on the composition of final states in photo- and electro-production were the subject of the reports by Heusch (U. of S. Cruz) and Weber (DESY): another