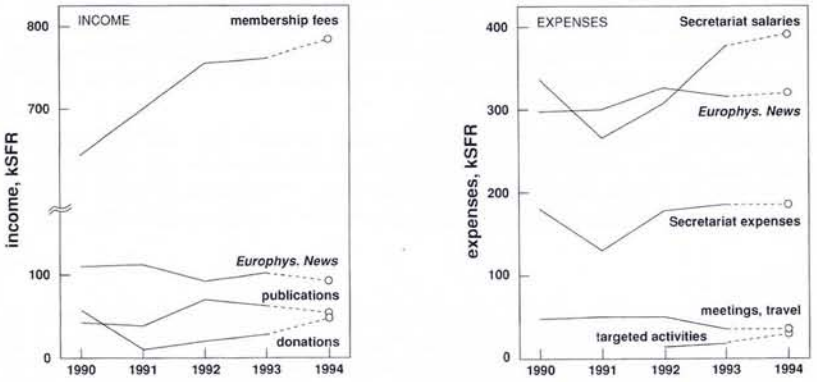
| INCOME | Budget accepted by Council | New estimate |
|---|---|---|
| Membership fees | | |
| Art. 4a) | 10 800 | 10 800 |
| Art. 4c) | 162 000 | 162 000 |
| Art. 4d) | 9 450 | 9 450 |
| Art. 4b) | 355 000 | 344 000 |
| Associates | 200 000 | 215 000 |
| *Europhysics News* | 108 500 | 102 100 |
| Other publications | 55 000 | 62 000 |
| Donations | 30 000 | 32 000 |
| **Total income** | **930 750** | **937 350** |

| EXPENDITURE | Budget accepted by Council | New estimate |
|---|---|---|
| Salaries | 374 000 | 374 000 |
| Administration | 177 000 | 184 000 |
| *Europhysics News* | 317 000 | 317 000 |
| Meetings, travel | 36 000 | 36 000 |
| Associate Members | 5 000 | 5 000 |
| East/West | 5 000 | 5 000 |
| Education Forum | 2 000 | 5 000 |
| Mobility Scheme | 5 000 | 5 000 |
| **Total expenditure** | **921 000** | **928 000** |

**EPS income and expenditure (in SFR) for 1993: as accepted by Council in March 1993 and the latest estimates submitted by the Treasurer to the Executive Committee.**




*Summary of EPS finances (in SFR) for the period 1990-94. The 1990 and 1991 figures are the final (audited) results, those for 1992 and 1993 are provisional estimates, while those for 1994 correspond to the proposals to Council. Note that* Europhysics News *received a special donation of 43 kSFR in 1990 which is included in Donations.*

increased postal charges. By reducing the number of issues and modernising the production process it became possible to lower both production and distribution costs while in fact increasing the number of pages published from 220 in 1992 to 232 in 1993.

### Balanced Budget for 1994

The Treasurer basically sees 1994 as a holding operation pending the introduction of the full membership arrangements whereby members of national societies can join EPS Divisions (Council will decide on modifications to the *Constitution and By-laws* in March). So he will propose a balanced budget which envisages an increase of some 20 kSFR in membership income owing to the increase in the unit fee from SFR 13.50 to SFR 14.50 that was agreed by the last Council. A slight decrease in contributions from Associate Members is anticipated because some companies and organizations are clearly having difficulty in responding in their usual way. There is an increase in 26 kSFR for the salaries of the Secretariat but essentially steady-state for the remaining items such as income to *Europhysics News* and miscellaneous items, Secretariat expenses, and travel costs.

It is planned to increase once more expenditures on targeted activities to 28 kSFR while setting aside a further 20 kSFR for Divisional activities. The latter is a new item which is needed to prepare the Divisions for an eventual increase in the numbers of members stemming from implementation of the full membership scheme. An increased amount (50 kSFR) has already been pledged by The Institute of Physics (15 kSFR) and the German Physical Society (35 kSFR) as donations to cover the cost in 1994 of targeted activities. The Treasurer is especially appreciative of this continuing generous level of support, without which it would be difficult to develop new activities.

# B. Pontecorvo

Bruno Pontecorvo, died on 24 September 1993. He was born in Pisa in 1913, the son of Maria and Massimo Pontecorvo who owned and managed an important textile firm; Bruno's elder brother, Guido, is a distinguished geneticist and his younger brother, Gillo, is a well-known film director.

After graduating from secondary school, Bruno entered the University of Pisa but after a year, following his brother Guido's advice, moved to Rome to study physics in the stimulating atmosphere of Fermi's school. The young Pontecorvo soon caught Fermi's attention and he was still an undergraduate when his name began to appear on papers on neutron physics. In 1937, Pontecorvo went to Paris to work on artificial radioactivity with the Joliot-Curie group at the *Institut du Radium*. His stay in Paris should have been a short one but it actually lasted more that three years because Italy's antisemitism laws deprived Bruno of his job in Rome. In Paris, Pontecorvo worked on slow neutrons, and on nuclear isomery: he showed that isomery could, in some cases, as he had previously suggested, lead to ß-stability. For this work and for his research on nuclear phosphorescence he was awarded the Curie-Carnegie Prize. He fled (by bicycle) to Spain in June 1940 to avoid being captured and from 1940 to 1943 he worked in the USA for an oil company. He then joined the British-Canadian group at Chalk River engaged in the design and construction of a heavy water reactor. Besides working on reactor physics, Bruno turned his attention to neutrinos and mesons. In a beautiful paper published in 1946 he described a neutrino detector based on the measurement of the amount of $Ar^{37}$ produced by the neutrinos absorbed by $Cl^{37}$. This method was used many years later by Raymond Davis to measure the solar neutrino flux. Pontecorvo also pointed out in his paper that his detector could in principle be used to verify whether or not neutrinos coincide with their antiparticles.

At Chalk River and later at the Atomic Energy Research Establishment at Harwell, Pontecorvo established the absence of the decay $\mu \rightarrow e + \gamma$ and, by measuring the electron spectrum in μ-decay, concluded that the electron must be accompanied by two neutrinos, thus establishing that muons are fermions. He was the first to point out that the $\mu^-$ and $e^-$ K-capture rates by nuclei are of the same order of magnitude provided the Bohr radii of the two particles are properly taken into account. He also measured the electron spectrum of tritium and determined an upper limit (1 keV) to the neutrino mass.

In the summer of 1950, Pontecorvo, who a few months before had accepted a chair at the University of Liverpool, suddenly disappeared during a holiday in Italy and surfaced a little later in Moscow. Bruno told me many years later that he had fled because he would have found it impossible to work in the West in the event of a 3rd World War. During his stay in Paris, Pontecorvo had become a communist even if not a card-carrying member of the Party. In a long talk we had during a prize ceremony in Pisa two years ago, Bruno told me that communism had been for him a sort of religion (he used this word) which for many years made him blind to all the shortcomings and horrors of the regime. He said it never occurred to him that *Pravda* could lie. Sadly, summarizing his disillusion, he continued: "I have wasted 30 years of my life".

In the Soviet Union, Pontecorvo pursued his research on weak interactions and was one of the first to suggest that the absence of the $\mu \rightarrow e + \gamma$ decay implied the existence of two types of neutrinos. After this was established by Lederman, Steinberger and Schwartz, Pontecorvo suggested that oscillations between the two neutrinos could be the source of the low rate of solar neutrino flux.

During most of the time he spent in Russia Bruno worked at JINR Dubna where he became the acknowledged mentor of several generations of Russian physicists, both theorists and experimentalists. He once told me he had tried to export to his adopted country the style of doing physics he had learnt from his teacher Fermi for whom he had, to the end of his life, and unbounded admiration.

Many honours were conferred on Pontecorvo in recognition of his extraordinary originality. He was a member of the Soviet Academy of Sciences, a foreign member of the *Accademia dei Lincei*; he received the Lenin Prize and a Doctorate *Honoris Causa* from the University of Ferrara. He remained throughout his life a modest and charming man always ready to help his friends and his students. During the last years, he was allowed to travel fairly freely without the secret police-looking "physicists" who used to accompany him during early trips. He used this freedom to make frequent journeys to Italy where he stayed with his sister in Rome, almost always making a point to visit the Scuola Normale *à la recherche du temps perdu*.

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