mentioned above, ^{22}Ne is overabundant by a factor of 3 - 4 and there may also be a smaller overabundance of $^{25,26}Mg$ and $^{29,30}Si$, by factors of ~ 1.7, relative to the dominant isotopes.

We have to look for particular nucleosynthetic sites capable of producing specifically ^{22}Ne. These are related to late stages of the evolution of massive stars. When these stars have consumed all the hydrogen in their centre, they start burning their helium. As far as heavy nuclei are concerned, the quiescent helium-burning results essentially in the copious production of carbon and/or oxygen by fusion of 3 or 4 alpha particles in the centre of the star. At the same time, addition of two alpha particles to the available nitrogen, accompanied by a β-decay, yields a ^{22}Ne overabundance by a factor of ~ 120. The most massive stars that have reached this stage of evolution emit strong winds, which are so powerful that the entire envelope of unprocessed material is expelled. At this stage, the helium-burning material appears at the surface of the star, and is also released into space. Stars having reached this stage are called Wolf-Rayet stars.

If ~ 1/50 of cosmic rays are produced out of Wolf-Rayet star material, the cosmic ray overabundances of both ^{22}Ne and carbon (the latter relative to solar energetic particles) are accounted for. If a smaller fraction of cosmic rays originates from material emitted by Wolf-Rayet stars at slightly later stages of stellar evolution, in which carbon is converted into oxygen, and ^{22}Ne into $^{25,26}Mg$, the observed marginal excesses of these species are explained as well. But the $^{29,30}Si$ excess, if real, does not fit this scenario.

Even later in their evolution, massive stars explode as supernovae. During the explosion itself, chains of high temperature reactions also produce ^{22}Ne, along with many other species. But if explosive reactions were the source of the excess ^{22}Ne, it would be accompanied by many other anomalies, which are not observed.

In Brief

The bulk of the observations suggest that most cosmic rays are suprathermal stellar energetic particles first emitted by stellar flares similar to solar flares, that later are boosted to much higher energies by strong supernova (or stellar wind) shock waves present in the interstellar medium. As such, their peculiar elemental composition, biased according to first ionization potential, reflects that of the outer atmosphere of ordinary stars, just as the similar composition of solar energetic particles apparently samples that of the solar corona. It has indeed been observed that a very wide class of ordinary small mass stars (tyes F to M) possess chromospheres and coronae very similar to those of the Sun, and are the site of flares which resemble those taking place on the Sun. Note also that, if cosmic rays originate in stellar matter, the lack of a deficiency of refractory elements, which are highly depleted in the gas phase of most of the interstellar medium, is readily explained. The ^{22}Ne and C excesses in cosmic rays are accounted for if, in addition to this main component, ~ 1/50 of cosmic rays are made of Wolf-Rayet star material.

But other interpretations are possible. In particular, one should keep in mind that a bias according to first ionization potential can mimic a bias according to volatility. Recent data from the HEAO-3 spacecraft hint that volatility, rather than first ionization potential, may be the relevant parameter. Should these indications be confirmed in the future, then the scenarios regarding cosmic rays as made of grain destruction products would become more appealing.

Third World Academy of Sciences

The Third World Academy of Sciences was formally inaugurated at Trieste on 11 November 1983 with 28 Founding Fellows from 14 different third world countries and 13 Associate Founding Fellows mostly from the USA but with backgrounds in the third world.

The broad aims of the Academy are defined as:

1. To help in providing high-level scientists in developing countries with the conditions necessary for the advancement of their work;
2. To promote individual contacts both within and outside these countries;
3. To help in identifying talent and promoting creativity;
4. To identify experts who can advise on national policy;
5. To encourage research and communication on major third world problems.

The first President of the Academy is Abdus Salam of Pakistan and the first vice-presidents: C. Chagas of Brazil, M.G.K. Menon of India and T.R. Odhiambo of Kenya. The office of the Academy will be at the location of the President and is now at the International Centre for Theoretical Physics in Trieste; M.H.A. Hassan is Executive Secretary.

European Geophysical Society

The European Geophysical Society (EGS) was founded in 1971 with the express purpose of organising regular meetings in Europe which younger geophysicists could attend. The Society is divided into three main sections

I Solid Earth and planets
II Hydrospheres and atmospheres
III Upper atmospheres, ionospheres, magnetospheres and the interplanetary medium.

There is also a Special Interest Group on Planetary Science.

The EGS is run by an elected Council drawn from a broad spread of countries and presently presided over by Professor R. Hide of Bracknell, England. The members, as in the EPS, comprise both individual members and corporate members i.e. societies, academies, institutions and groups. The Society publishes the journal *Annales Geophysicae* and, jointly with the American Geophysical Union, runs the journal *Tectonics*. It also distributes a newsletter to members.

The next annual meeting will be held in Louvain-la-Neuve (Belgium) from 30 July to 3 August 1984. There will be four parallel symposia:

1) Solar Geophysical Indices Revisited
2) First Results from European Geophysics and Solar Experiments on Spacelab
3) Thermosphere/Ionosphere Coupling at High Latitudes and Possible Solar Wind/Magnetosphere Influence
4) Future Planetary Missions and a workshop on:
Magnetospheric Effects of Seismic Activity (F. Lefeuvre and M.B. Gokhberg)

Proposals for papers are welcome.
Abstracts by 15 April 1984 to:
Dr. P.A. Davies, Ch. of Prog. Comm.,
Dept. of Civil Engineering,
The University, Dundee, DD1 4HN, UK.

Physics as a basic knowledge, as a tool, as a provider of concepts, is involved in the research activities of many borderline fields. It is therefore normal and to be encouraged that EPS develops working contacts with other organisations active on the European scale in these fields. This is particularly true of geophysics, where contacts with, for example, condensed matter physics and atomic and molecular physics as well as with the computing group and general contacts on instrumentation could only be useful to EPS and the European Geophysical Society.

Potential members should contact:
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