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Committee on the Peaceful Uses of Outer Space

Report on the United Nations/Austria/European Space Agency Symposium on Enhancing the Participation of Youth in Space Activities: Implementing the Recommendations of UNISPACE III

(Graz, Austria, 17-20 September 2001)*

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^{*} The present report required preparation by the individual speakers of abstracts of the presentations that they had made during the workshop. This process took several weeks, which delayed the submission of the report.

I. Introduction

A. Background and objectives

- 1. In its resolution 54/68 of 6 December 1999, the General Assembly endorsed the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development" which had been adopted by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III). UNISPACE III had formulated the Vienna Declaration as the nucleus of a strategy to address global challenges in the future. Part of that strategy called for actions to create, within the framework of the Committee on the Peaceful Uses of Outer Space, a consultative mechanism to facilitate the continued participation of young people from all over the world in cooperative space-related activities.
- 2. In his report of 10 January 2000 to the Committee and its Scientific and Technical Subcommittee (A/AC.105/730), the Expert on Space Applications proposed the organization of a series of symposia to promote the participation of young people in space activities as part of the programme of workshops, training courses, symposia and conferences of the United Nations Programme on Space Applications for 2000-2002. In its report on its forty-third session, the Committee endorsed the organization of such a series of symposia.²
- 3. The present report contains a summary of the presentations and discussions of the second United Nations/Austria/European Space Agency Symposium on Enhancing the Participation of Youth in Space Activities, held from 17 to 20 September 2001 in Graz, Austria. The symposium, the eighth in a series of symposia held in Graz, was organized as part of the 2001 activities of the United Nations Programme on Space Applications and was co-sponsored by the Federal Ministry for Foreign Affairs of Austria, the State of Styria, the City of Graz, the Federal Ministry for Transport, Innovation and Technology of Austria and the European Space Agency (ESA).
- 4. The 2001 symposium was the second of a series of three consecutive annual symposia dealing with the participation of young people in space activities. It provided young people with a forum to express their unique and innovative ideas and visions for turning some of the recommendations of UNISPACE III into

- reality. At the same time, it provided opportunities for young people to discuss how education and training, in particular among youth, should be addressed. The third symposium, which will also be held in Graz, Austria, will build on the outcomes of the 2001 symposium.
- 5. The objectives of the symposium were: (a) to continue to enhance the participation of youth from all over the world in space activities; (b) to review the progress that had been made in implementing the projects and activities that were proposed at the symposium held in 2000; (c) to identify some recommendations contained in the Vienna Declaration¹ and the report of the Space Generation Forum³ of UNISPACE III for implementation by youth groups.
- 6. The present report covers the background and objectives of the symposium, as well as the discussions held, actions taken and recommendations made by the participants. It has been prepared for submission to the Committee on the Peaceful Uses of Outer Space at its forty-fifth session and to its Scientific and Technical Subcommittee at its thirty-ninth session in 2002. The proceedings of the symposium, including the list of participants, will be prepared by the Office for Outer Space Affairs in due course.

B. Programme

- 7. At the opening of the symposium, statements were made by representatives of the United Nations, ESA and the host country. The keynote addresses were given by Piero Messina, ESA, and Kelly Snook, Cofacilitator of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. The programme included sessions on education and outreach; projects and activities being carried out by the Space Generation Advisory Council (SGAC); regional youth initiatives; parallel working group sessions of the regional youth groups of SGAC; and astrobiology. Presentations by invited speakers and working group sessions were followed by panel discussions.
- 8. Presentations were made by representatives of ESA, the Communications Commission of Kenya, the Swedish Institute of Space Physics, Cosmos Education Inc. of the United States of America, the Goddard Space Flight Center of the National Aeronautics and

Space Administration of the United States, the United Nations Office for Outer Space Affairs and SGAC.

C. Attendance

- 9. The United Nations, on behalf of the co-sponsors, invited developing countries to nominate suitable candidates under the age of 35 for participation in the symposium. Selected participants were required to have a university degree or well-established working experience in a field related to the overall theme of the meeting. The selected participants should also be working in programmes, projects or institutions that conducted education or outreach activities or with space-related companies. Students without university degree or professional working experience were accepted if they were actively involved in space-related activities in their home countries or SGAC or if they had been actively involved in the work of the Space Generation Forum during UNISPACE III.
- 10. Funds allocated by the Government of Austria and ESA were used to cover the travel and living expenses of selected participants. In total, 76 space experts attended the symposium.
- 11. The symposium was attended by participants from the following 35 countries: Algeria, Argentina, Australia, Austria, Azerbaijan, Bangladesh, Brazil, Burundi, Canada, Croatia, Germany, Ghana, Greece, Italy, Kazakhstan, Kenya, Malaysia, the Netherlands, Pakistan, the Philippines, Poland, Romania, South Africa, Sri Lanka, Swaziland, Sweden, the Syrian Arab Republic, Thailand, Turkey, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, the United States, Uzbekistan, Venezuela and Viet Nam.

II. Summary of proceedings of the symposium and recommended activities

A. Observations, activities to date and accomplishments

12. The people who have made the greatest impact on the world, for better or worse, have not necessarily always been the most intelligent, best educated or

- wealthiest. They have been the people with the strongest and deepest convictions. The common quality that the participants of the symposium exhibited, besides being talented young people, was the conviction that the peaceful use of space could profoundly benefit their nations and the world.
- 13. Discussions at the symposium focused on the participation of youth in space activities, emphasizing the potential inherent in the energy of youth and their position as the next generation of leaders. It was emphasized that the youth of what is being called "the space generation" were an agent for change and that the results of the Space Generation Forum and the previous symposium held in Graz, Austria, in 2000, amply demonstrated that fact.
- 14. Participants were provided with a broad overview of the mechanisms, activities and programmes through which young people could both benefit from and contribute to space for the benefit of humanity. Such mechanisms included SGAC and its numerous activities.
- 15. Initiatives that focused on education and outreach were fundamental to programmes to promote the participation of youth in space activities. Education and outreach were the focus of sessions 1 and 2 and constant themes throughout the symposium. Education was discussed in its broadest sense. The topics covered in presentations and discussions ranged from increasing the profile of space in society to using its multidisciplinary nature as a context to teach traditional studies in an exciting and accessible way. Particular emphasis was placed on how developing countries could use education as a cornerstone in developing their space activities.
- 16. At the sessions on current projects of SGAC (session 3) and regional youth initiatives (session 4) participants were inspired by the success stories, lessons learned and descriptions of obstacles overcome in the pursuit of the wide range of activities presented. (The activities are summarized in chap. III, sect. B, below.) The participants realized that many international projects that had been initiated or promoted by SGAC had furthered the peaceful use of outer space. However, they also realized that many challenges remained.
- 17. The participants, some of whom had attended the Space Generation Forum at UNISPACE III and the

2000 symposium at Graz, Austria, participated in working groups by geographic regions in sessions 5 and 6. The participants analysed the recommendations contained in the Vienna Declaration and the report of the Space Generation Forum. The working groups identified issues that were important to their regions and proposed projects that would serve to implement some of the recommendations in 2002. Those projects, including some that had been initiated in 2000, were formally endorsed by SGAC. The regional projects were presented to the participants of the symposium at the closing session. (The projects and activities are described in chap. III, sect. D, below.)

- 18. Throughout the symposium, the participants bore in mind that countries were at different stages in the development of space activities. While some countries were in a position to explore the solar system, other countries concentrated on specific areas of space activities and some had not yet developed a significant level of activity in the field. Furthermore, for many developing countries one of the first priorities was to establish infrastructure for communications and information technology. In that context, education and awareness were equally important to all and could serve as a common focus of cooperative activities.
- 19. Two youth groups, the African Alliance for Space and the Space Association of Turkish States, were formally created and endorsed by SGAC and the United Nations Office for Outer Space Affairs during the symposium.

B. Recommended action

- 20. Several projects were proposed as a result of discussions in the working groups (see chap. III, sect. D, below). The symposium recommended that the regional groups should establish local working groups that would develop action plans for implementing the projects and report on their progress to the 2002 symposium. The symposium noted that, to be successful, the groups would need to find access to telecommunications and some amount of funding.
- 21. The participants requested SGAC to disseminate a list of its country and regional representatives and to provide more guidance and support to the regional groups. It was also agreed that letters identifying the regional representatives and their positions within

SGAC were needed to facilitate outreach activities and other substantive work. The Office for Outer Space Affairs and SGAC agreed to provide such letters.

22. The participants also requested SGAC to continue to promote the participation of young people, particularly young women, in space activities and to seek to include the developing countries in SGAC activities on a priority basis.

III. Presentations and discussions

23. The overall theme of the symposium was introduced by the two keynote speakers. They represented the views of youth and educational institutions, placing the goals of the symposium in juxtaposition to the terrorist attacks in the United States. They focused on the ever-increasing interdependence of humanity and the vision that all people had Earth as a common homeland. Current and future leaders and decision makers were called upon to exercise a new model of leadership based on the principles of humility, integrity and devotion to the unity and betterment of all peoples, thus placing all activities within a global context and requiring that global interests be paramount.

A. Education and outreach (sessions 1 and 2)

- 24. The session on education and outreach provided an overview of ongoing efforts of individuals and organizations to achieve increased public awareness, specifically through educational systems as well as by means of extracurricular educational activities designed for young people.
- 25. Francis Wangusi (Kenya) provided insight into the difficulties that Africa faced and the role that space technologies and youth could play in redressing them. If Africa could integrate space-related technologies with indigenous technologies to find sustainable solutions, the use of space would be vitally important for Africa. The challenge of doing so could be met in many ways: by increasing access to various technologies; by increasing international interaction; by developing local and regional youth forums; and by strengthening local communication networks. In that context, education and outreach efforts were essential

components in improving Africa's capability to solve its problems.

- 26. The Expert on Space Applications presented the education and training activities carried out under the United Nations Programme on Space Applications. The efforts of the Programme were directed towards improving the capacity of developing countries to use space technology for development purposes. The Programme organized short-term training courses for technical personnel and workshops to raise the awareness of managers and decision makers of specific space technology applications. The Programme promoted long-term education through fellowships at space institutions and through the regional centres for space and technology education, affiliated to the United Nations. Such Centres had been operating successfully in India, Morocco and Nigeria. Similar centres were being established in Brazil, Jordan and Mexico. A network of space science and technology education and research institutions of central-eastern and south-eastern Europe had also been established under the aegis of the Programme.
- 27. Piero Messina, ESA, provided insight into many of the educational and outreach activities and opportunities that ESA provided for European young people. As a basic policy, ESA committed one per cent of its budget to education and outreach. That level of commitment translated into a large number of ESA-sponsored educational activities for young people, ranging from dedicated web pages and educational newsletters to opportunities to carry out experiments on parabolic flights. Through such programmes, ESA aimed to challenge and motivate gifted youth and in turn strengthen the space workforce in Europe. Most of the programmes were for Europeans only.
- 28. Nina von Krusenstierna (Sweden) provided insight into the aims and activities of the Kiruna Space Campus (KSC), a Swedish governmental research institute that carried out basic research on space physics. It was unique among institutions as it carried out advanced space research in a wilderness environment where the aurora borealis phenomenon could be seen during a large part of the year. The Campus was more than a standard research institute, as it had an active network of contacts with companies, educational outreach programmes, industry, local communities and the tourism industry. Because of the many activities at the Campus, students were given

unique opportunities to engage in interactive collaboration with space professionals. Every student at KSC was involved in either a satellite or an atmospheric balloon project. The Campus had outreach activities that included organizing national student contests and preparing forecasts of aurora events.

B. The Space Generation Advisory Council and its projects (session 3)

- 29. The results of and progress achieved on some of the activities and projects of SGAC that were initiated as a result of the 2000 Symposium were presented to the symposium.
- 30. Incigul Polat (Turkey) made a presentation on the environmental degradation caused by deforestation in Burundi and the application of remote sensing to assist in dealing with the problem. An interregional project that had received strong support from the Government of Burundi, the Canadian Space Agency and local community groups not only provided environmental benefits but also served as a working example of the effective use of space technology in developing countries while providing inspiration and education to local youth. A key to the success of the project was the involvement of young people from several continents with local people at all levels. The project will continue in 2002.
- 31. George Whiteside (United States) provided information on "Yuri's Night", a world space outreach project and global celebration of humanity. The diversity of Yuri's night celebrations was matched only by the diversity of the participants and celebrations, which ranged from dance parties attended by 1,500 people to three-day space-related conferences. Yuri's Night was celebrated in 64 cities in 29 countries. It was estimated that 10,000 people had attended Yuri's Night activities and that, through extensive media coverage, the event had reached around 25 million people. Yuri's Night also raised \$30,000 in funds to cover direct costs and support selected international charities.
- 32. Kevin Hand (United States) talked about activities of the Cosmos Education organization and the project entitled "Under African Skies". The project involved an international team of youth from 13 countries and 5 continents who travelled from

Johannesburg to Nairobi during a period of 40 days in the summer of 2001. The team visited five countries. It reached 34 schools, educating 4,000 students on a variety of space-related topics from astronomy to history and culture. The project was a powerful example of international cooperation that excited, engaged and empowered African youth. The highlight of the expedition was a three-day conference that coincided with a solar eclipse. The Office for Outer Space Affairs participated in the conference. The project will be organized again in 2002, and there are plans to extend it to Asia and eventually to the whole world.

33. Stuart Gill (Australia) made a presentation, which had been prepared jointly with James Moody (Australia), on the Australian Students' Association (ASSA) and Space Futures 2000 (SF2K) conference. Organized by ASSA, SF2K had been held during World Space Week and had attracted over 200 Australian university students and young professionals. The conference served as a forum for Australian youth to discover space activities in Australia and to provide networking opportunities and access to the international space community. The theme of the conference was "Education and collaboration—building a sustainable space industry". The major outcome of the conference was the Space Youth Charter, reflecting the visions of young people for Australian space activities. The Charter was presented to and received positively by the Australian Government. An Educator Forum, held in conjunction with the conference, helped to generate considerable activity in Australian space education and led to a grant of 6.4 million Australian dollars to build a space education centre in Victoria and the inclusion of a space curriculum in the Queensland educational initiative "New basics". A second Space Futures conference that will focus on innovation and development, will be organized in 2002. The conference will reach out to countries in the Asia and Pacific region.

34. Alenson de Bortoli (Brazil) made a presentation on the activity entitled "SPACE", describing activities carried out for the benefit of young people in Brazil. The concept of SPACE had been created at the Space Generation Forum during UNISPACE III in 1999. The aim of SPACE was to introduce talented students to space science and technology by providing challenging group projects. Special emphasis was placed on

presenting the projects to the public. Projects that had been concluded included the building of experimental rockets and "UNOSAT I", a student-built satellite with community participation that would broadcast the first Brazilian voice from space. The projects were to be presented at the fifty-second Congress of the International Astronautical Federation, to be held in Toulouse, France, in October 2001.

35. Gernot Groemer (Austria) made a presentation, which had been prepared jointly with Mark Dejmek (Canada), on the SGAC project entitled "Global Space Education Curriculum". The aim of the project was to develop a global space curriculum for primary, secondary and tertiary schools. The curriculum would respond to the educational initiatives of the United Nations aimed at incorporating space science and technology into the educational systems of all countries. Another initiative of SGAC was an ambitious project entitled "Global Space Education Index", which would produce a consolidated directory of existing space education material in order to facilitate access to it. Several other international pilot projects were also discussed, including the organization of an event during World Space Week.

C. Regional youth initiatives (session 4)

36. Patricio Figueredo (Argentina), a founder of the Asociación Latinoamericana del Espacio (ALE) at the Graz symposium in 2000, provided an overview of the activities of ALE. The one-year-old ALE was a regional point of contact that provided opportunities for young people to increase their awareness of space in general through collaboration in joint projects, education and outreach. The projects and activities included the development of a web page project, experimental rocketry, demographic studies and automated hydroponics.

37. Will Marshall (United Kingdom) shared his experience in setting up a national youth advisory group that worked in cooperation with the British National Space Council. He suggested ways in which youth, from the bottom up, could influence and contribute to government policy. Participants in the symposium were encouraged to explore opportunities in their home countries, for example, establishing relationships that would increase the awareness of local decision makers and strengthen the efforts of

young people who were helping to implement the recommendations of UNISPACE III and the Space Generation Forum. A logical next step would be to act at the regional level, which in the case of Europe would mean approaching ESA.

- 38. During the discussion that followed, it was suggested that SGAC could collaborate with other youth advisory groups (e.g. the United Nations Environment Programme Youth Advisory Council) to build synergies in youth activity.
- 39. Asante Foster (Ghana) made a presentation on the African Youth in Space Initiative Programmes. The initiative had resulted from the success of UNISPACE III in inspiring the world, particularly Africa, to promote the use of space applications to create and promote space education that would support sustainable human development and increase the opportunities for space activities in Africa. Africa faced many difficulties. Foremost of those was the lack of public and government awareness of the potential of space technology for providing information for decision making. That lack of awareness was compounded by a lack of infrastructure, especially in information technology, to disseminate information. Such difficulties defined the goals of a group of African youth. To achieve those goals, there was need to develop cooperative relationships with the international space community. The group was committed to promoting such activities as World Space Week, Yuri's Night and various youth outreach projects that would generate enthusiasm and interest. Other specific actions included the development of a pilot regional youth conference and possible activities at the 2002 World Space Congress.
- 40. Imram Majid (Pakistan) made a presentation on the involvement of young people and space professionals in western Asia in a project called "Khalla". The aim of the project was to motivate regional planners and youth to work towards building a resourceful network of young visionaries. The problems to be solved using remote sensing technologies included deforestation and urban planning. Activities in those areas included promoting education for all and creating awareness. Another aim of the project was to disseminate information on the activities of the Islamic Youth Working Group, which promoted SGAC activities, Yuri's Night and the organization of the Pakistan World Space Week.

- 41. Elchin Babayev (Azerbaijan) provided information on the Azerbaijan National Aero-Space Agency (ANASA), which included five scientific and technological enterprises plus a number of astronomical observatories and other space-related organizations. Some 14 young people were actively involved in the local branch of SGAC, and the aim of their group was to realize the existing potential of young people by providing them with space goals to be implemented in the near future. The achievements of the group included receiving extensive press coverage and providing access to jobs for talented young people. Future steps included establishing contacts with various international space agencies.
- 42. A presentation by four participants focused on Cassiopee, one of the two design projects of the summer session of 2001 of the International Space University. The project was developed as an environmental satellite focused on Europe for verifying compliance with the Kyoto Protocol, and in particular monitoring greenhouse gases, which affected global climate change. The satellite was scheduled for launch in 2005 and would monitor the entire European continent. The satellite mission was expected to increase knowledge about biogenic emissions, refine the technology and monitor compliance with the Kyoto Protocol.

D. Regional youth working groups (sessions 5 and 6)

43. The third day of the symposium was devoted to meetings of regional groups. During those meetings, the groups formulated proposals for practical initiatives to implement the recommendations of UNISPACE III and the Space Generation Forum, as well as other activities. As indicated in paragraph 20, above, the plans of action for each proposal were to be developed by the regional groups after the conclusion of the symposium. The project titles and mission statements of each of the regional groups are presented below.

Latin America

44. The projects of the regional group for Latin America are:

- (a) Asociación Latinoamericana del Espacio (ALE): to develop a strategy to further the growth of ALE and, by doing so, to fulfil one of the recommendations of the Space Generation Forum on a vision of the future (A/CONF.184/L.14);
- (b) ALE web site: to expand the ALE web site to serve as an information resource, provide a point of contact and facilitate communication among Latin Americans;
- (c) Latin American space school: to create a programme that educates teachers and students in space science and technology and their peaceful applications. To disseminate information, prepare educators and provide educational opportunities for Latin Americans.

Asia and the Pacific and western Asia

- 45. The projects of the regional group for Asia and the Pacific and western Asia are:
- (a) Regional education fund: to establish a fund that will support space prizes and the promotion of space education programmes at the regional and global levels. The fund will also provide for a proposed regional space school;
- (b) Space philosophy booklet: to prepare a multilingual booklet to consolidate the vision of youth, raise the awareness of national Governments and the general public and promote cultural ties. The work will be overseen by an intergenerational moral and ethics committee:
- (c) Regional youth conference: to organize a conference with the objectives of supporting and coordinating activities of youth working groups through SGAC influencing policy-making bodies and the public in order to generate support for space science and technology. The Office for Outer Space Affairs will be invited to participate in the conference;
- (d) Regional space agency: to carry out a study on the feasibility of enhancing cooperation between countries to cater to regional needs and to improve access to space information in order to bridge the information gap;
- (e) *Disaster management*: to promote the use of space technology to mitigate the effects of natural disasters and facilitate disaster management;

- (f) Space debris: to establish a committee on space ecology to increase public awareness of space hazards:
- (g) Space information technology: to develop databases and web sites to increase regional access to information.

Africa

- 46. The projects of the regional group for Africa are:
- (a) African youth conference on space science and space applications: to hold a regional space conference to promote space awareness among African youth. The conference will explore ways to integrate space technology into sustainable development programmes and education curricula in Africa;
- (b) Burundi deforestation project: to preserve natural resources using space technology; to increase awareness of the appropriate use of space technology (remote sensing) and its role in sustainable development for Africa; to establish local non-governmental youth groups to sustain the initiative; and to ensure that communities are involved in maintaining their local environmental resources through decision-making and, hence, improving quality of life;
- (c) World Space Congress: to use the World Space Congress to promote the visibility of space education in Africa; to establish a network of international contacts by attending the World Space Congress; and to ensure the establishment of space desks in all governmental and non-governmental institutions in Africa as a way of enhancing the implementation and sustainability of projects.

Europe

- 47. The projects of the regional group for Europe are:
- (a) Integrate European activities: to encourage the establishment of national space agencies in every European country and to integrate their activities under a pan-European body;
- (b) Global space prize: to create a high-profile annual global space prize (similar to the Nobel prize) to promote space achievements;
- (c) Space education curriculum: to assess the content of space topics in existing curricula in European countries with the goal of furthering the level

of space education. Initially a pilot project involving six countries will be conducted:

- (d) Fundraising: to raise funds to develop youth awareness of the space sciences and to recommend a form of funding for projects and organizations associated with SGAC. Projects that can make profit (e.g. Yuri's Night) would be used to raise funds for other current and future projects of SGAC (e.g. Under African Skies);
- (e) Science teacher exchange programme: to exchange teachers and experience between Europe and Africa. While there is a surplus of teachers in some science disciplines in certain African countries, there is a need for teachers in Europe.

North America

- 48. The projects of the regional group for North America are:
- (a) World Space Congress: to organize a youth space conference for young people in conjunction with the World Space Conference 2002, which will be held in Houston, Texas, United States, and to encourage broad participation and emphasize the participation of developing nations;
- (b) SGAC development in North America: to continue the growth and development of SGAC in North America; to continue to support ongoing activities and initiatives as well as develop new ones; and to expand the capabilities of the North American region and develop better communication methods. This will enhance cooperation within the region and globally.

Global working group

49. The global working group recommended that SGAC, along with other organizations, should propose the idea of creating a United Nations committee for the long-term survival and prosperity of humanity to potential sponsor countries that could bring the idea to either the General Assembly of the United Nations or to the United Nations Educational, Scientific and Cultural Organization.

E. Astrobiology (session 7)

- 50. "Astrobiology is the study of the origin, distribution and future of life in the Universe". With that broad and visionary definition, Mark Lupisella presented astrobiology as relating to the aims and the objectives of SGAC. He emphasized that its multidisciplinary nature and its broad interest for society led naturally to applications in innovative education and public outreach and to discussion of such issues as planetary stewardship and planetary protection, ethical and theological matters, the impact of proof of alien life on humanity and cross-contamination between celestial bodies.
- 51. During the discussion, various related topics were mentioned, including ESA activities in astrobiology, the young astrobiology network in the United Kingdom, risks of contamination caused by human missions to Mars and the agendas of future meetings of the Astrobiology Society.

Notes

- ¹ See Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999 (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.
- ² Official Records of the General Assembly, Fifty-fifth Session, Supplement No. 20 (A/55/20).
- ³ See Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space ..., annex II.

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