

## CONCLUDING REMARKS

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I have been asked to make some closing remarks but I shall try to be very brief because we have had a full program and I think we are all rather tired.

We began with some general considerations about the origin and evolution of the solar system and we have proceeded from that point through many discussions of new observations and new ideas about the atmospheres, surfaces, interiors and magnetic fields of our neighbouring planets. It has been clear from these discussions that we are living in an age during which the exploration of the solar system is being pursued with unusual vigor – helped by much sophisticated equipment, and especially by the results given to us by spacecraft which are actually visiting these planets.

I think it is a special honour for all of us to be having these discussions in Toruń, on the occasion of the 500th anniversary of the birth of Copernicus. Throughout this symposium, I have been fascinated with the picture of Copernicus that is hanging on the wall. In this particular portrait he appears to be almost smiling, and I have been asking myself: what is the meaning of this smile? It seems to me it is the kindly expression of a very wise man whose vision was so profound that his existence divided astronomy into two eras – pre-Copernican and post-Copernican. Perhaps he is slightly amused at the slow rate of progress in the understanding of the solar system that has been achieved in the 500 years since he was born.

But I would like to offer the following perspective. It seems that perhaps Copernicus represents the pure simple childhood of astronomy. Indeed his vision is similar to the difficult moment in the life of a child when he discovers that he is not the center of the universe as he thought when he was a baby. It is a wise child who happily survives the shock! In contrast, I would suggest that we are living in a stormy adolescent phase of solar system science, rich in passion and new discoveries. Nevertheless, we continue to carry vestiges of pre-Copernican thinking with us – the very designation ‘terrestrial planets’ is one example, and this Earth-centred view undoubtedly contributed to the mistaken notion that Venus and Mars must have atmospheres rich in nitrogen like our own, a notion that has died out only in the last decade.

Must we wait another 500 years for maturity? I think not. It seems possible to us that 70 years from now, when perhaps in this same auditorium our grandchildren will be commemorating the 500th anniversary of the death of this great man, they will have such an immense variety of information about the planets at their disposal that their perspective may once again achieve the unifying simplicity that distinguishes the Copernican world view.

Meanwhile, it is up to us to do our best to help this come about, and surely international meetings such as this one are an excellent way to stimulate research in this exciting field.

As one of the last speakers in this symposium, I should like once again to express our deep appreciation to Dr Woszczyk, to Prof. Iwanowska, to the Rector of the University, to the Chairman of the City Council and to their many associates for sharing their beautiful city and its fine university so graciously with us on this occasion.

Dziękuję bardzo. Thank you.