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Fourth International Seminar on Inclusion Compounds

This issue contains a selection of papers presented at the above Seminar, which was held in Stará Lesná, Czechoslovakia, 17–21 June 1991. The organising committee was chaired by Professor Anna Sopková and her welcoming address is reproduced below.

Our meeting of inclusion chemists, The Fourth International Seminar on Inclusion Compounds in our country Czechoslovakia, will be concerned with the contributions of the fundamental interactions between molecules leading to their association and the formation of inclusion compounds. The broad range of compounds formed by synthetic or natural inorganic, organic and organometallic components, both in solution and in the solid state, will be treated here.

This seminar is one of a series of such meetings. There are also the meetings dealing with a broader spectrum of inclusion compounds, viz., the International Symposia held in the world:

- the first one in Warsaw–Jachranka in September 1980
- in August 1982 in Parma, then
- the third in July 1984 in Tokyo
- the fourth held in Lancaster in July 1986,
- the fifth in Alabama in September 1988,
- the sixth in September 1990 in Berlin.

Additionally there have been Symposia dedicated especially to the cyclodextrins:

- the first in 1981 in Budapest,
- the second in 1984 in Tokyo,
- the third in 1986 in Lancaster,
- the fourth in 1988 in Munich and
- the fifth in 1990 in Paris.

The International Seminars were organized in the time between the above International Symposia:

- in September 1981 here in Stará Lesná in Czechoslovakia,
- in September 1987 in Jaszowiec in Poland,
- in August 1989 in Novosibirsk in USSR.

The necessity for the International Seminars arose from the fact that whilst we were able to contribute, we could not personally participate in rather great numbers in the International Symposia. But the organizers and plenary lecturers of the Symposia could come to our Seminars.

Therefore, this morning we are glad that we can meet you again and that it is in our country.

I welcome all members of the International Advisory Committee and simultaneously the invited lecturers from abroad and Czechoslovakia and I welcome all participants to our meeting. We are pleased to have with us:

- Prof. J. L. Atwood from the University in Tuscaloosa, one of the Editors of the *Journal of Inclusion Phenomena and Molecular Recognition in Chemistry*,
- Prof. T. Iwamoto from the University in Tokyo, the representative of the Hofmann and related compounds, studied also in our Department,
- Prof. Yu. A. Dyadin from the Academy of Sciences in Novosibirsk,
- Prof. G. D. Andreetti from the University in Parma,
- Prof. D. Duchêne from the University in Paris,
- Prof. J. Szejtli from Cyclolab, Budapest,
- Prof. G. Alberti from the University in Perugia,
- Prof. E. Smolková-Keulemansová from Charles University in Prague,
- Prof. V. Jesenák from the Slovak Technical University in Bratislava,
- our coworkers Prof. P. Králik and Prof. M. Šingliar, both being ex-teachers of our Department.

We regret that Dr. J. E. D. Davies, Prof. W. Saenger and Prof. D. Sybilska are not able to come.

Equally I welcome sincerely the members of our Local Committee and you all as participants of our meeting coming from USA, Poland, Italy, Hungary, Japan, France, USSR, Sweden, Germany and Czechoslovakia.

The organization of our 4th International Seminar is aimed at increasing the interest in Inclusion Compounds and Phenomena and their practical use in Czechoslovakia.

Allow me therefore to make a brief survey of its history in our country.

Clathrate compounds have been well studied in Slovakia, initially in the form of cryptates. This was done in Bratislava at the Chemical Technological Faculty by Prof. V. Jesenák and Prof. J. Tölgyessy and their group around the year 1965. Their work in this field, mainly in the radioanalytical branch of chemistry, is well known.

In 1967 the interest in true clathrate chemistry began in Eastern Slovakia when we started, together with the late Prof. J. Jalůvka from the Technical University in Košice (*Chem. listy* **63**, 273 (1969)) to study clathrates as possible starting materials in the study of carbonyls of nickel. This theme – the clathrates of tetracyano complexes and inclusion compounds is still pursued in our Department. We study them from the theoretical point of view as well as from the view of their possible applications.

Inclusion compounds are studied at Charles University in Prague by the group of Prof. E. Smolková-Keulemansová in the Department of Analytical Chemistry and in the Chemical Technological University in Pardubice by the group of Prof. J. Klikorka and Prof. J. Votinský in the Department of Inorganic Chemistry. These interests are also pursued in the Department of Organic Chemistry (Prof. J. Stibor) of the Chemical Technological University in Prague and in the Czechoslovak Academy of Sciences (Dr. J. Vondrák) in Prague, and recently in the Slovak Technical University (Prof. E. Jona and R. Boča) in Bratislava.

That is the formal history of inclusion compounds in Czechoslovakia showing that the chemistry of inclusion compounds crosses the classical frontiers between the

disciplines of chemistry. Inclusion phenomena may consequently be studied from the analytical, inorganic, organic, biochemical, physicochemical and technological view points. And these aspects are very fruitful from the view of material science studies.

But inclusion compounds exist also in other forms. Some compounds appear as inclusion compounds only at low temperatures and they are waiting for their identification. Others exist in our life, products and semiproducts as unknown compounds and they influence the properties and reactivity of apparently simple compounds, important in all branches of theoretical and also industrial chemistry.

Inclusion compounds are formed by at least two kinds of compounds forming the host and the guest component. The guest component is inserted or enclosed in the space formed by the host component. Both components are formed by a range of molecules and therefore a series of interactions exist, which may influence the behaviour of the inclusion compounds and their possible uses. To date they are used by inclusion chemists for storing drugs, pharmaceuticals, as catalysts, and also for separation and sorption processes in analytical chemistry and technology. And they are represented by the synthetic and natural products, not always designated as inclusion compounds. Because of important mineral deposits in Czechoslovakia our seminar is also subtitled: Natural and synthetic inclusion compounds.

With a view to better understanding the properties and phenomena in such materials we are glad to be here accompanied by you and I am honoured to welcome you all once again.

ANNA SOPKOVÁ