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INTERNATIONAL ORGANIZATION OF PLANT BIOSYSTEMATISTS

NEWSLETTER No. 3

CONTENTS

Dear IOPB Members,

The third issue of the Newsletter is born and I'm very grateful to all contributors. Dr. Clive Stace sent in an excellent lead article on Infraspecific Nomenclature. Please think over the suggestions of Dr. Stace - perhaps we'll manage to start a discussion on the subject? I'm waiting for your comments to be published in the Newsletter.

The lead article for the next issue of the Newsletter should be appreciated; who has any good ideas to share with fellow scientists?

'Profile of Lab' comes this time from Poland. The research initiated by late Professor Maria Skalinska is being continued and the programme expanded. Many thanks to Dr. Eugenia Pogan for the ample, interesting information.

You should pay a special attention to page 12: This Is Your President Speaking! Dr. Grant gives us a detailed report on his recent visit to Japanese universities.

Reading the column 'Meetings' please keep in mind that some symposia have already been announced in the previous issues of the Newsletter. They **shall not** be listed again, the only exception being made for the IOPB Symposium (Zürich, 1986, see also page 18).

Data for the next issue of the Newsletter should arrive here before May 31, 1985.

With the best seasonal greetings,

The Editor

2. LEAD ARTICLE

By Dr. Clive A. Stace, Reader in Plant Taxonomy in Department of Botany, University of Leicester, England.

Intraspecific Nomenclature, or

How do we express taxonomically our biosystematic discoveries?

Probably most of us biosystematists are more than happy to leave nomenclatural arguments and decisions to the library- and herbarium-based taxonomists, because in that way we can devote more time to working with living plants. Such reasoning is entirely understandable, and it would represent an ideal division of labour providing nomeclaturists and their rules of nomenclature (i.e. the Code) were giving us a satisfactory service. However, I am taking this opportunity to try to show that we are receiving a far from satisfactory service, and that it is not going to improve unless we (the consumers) play an active role in a radical reconsideration of the Code with respect to infraspecific nomenclature.

I must make it clear that I believe the fault lies not with our nomenclaturally-inclined colleagues, who simply do their best within the framework of the Code, but with the Code itself, the main provisions of which were laid down over half a century ago and have now become quite outmoded with respect to infraspecific nomenclature. This outmodedness means that the Code cannot be applied to a great many situations, which has in turn led in very considerable measure to abandonment of infraspecific ranks. Almost all Floras and monographs nowadays utilize only the subspecific category below the species level, with sometimes the varietas as an alternative (very rarely additional) and the occasional use of the forma. The subspecies now simply implies any sort of taxon below what it is generally reckoned to be a species.

Do we need a system of infraspecific ranks?

I believe it is vital to be able to refer infraspecific variants to named taxonomic ranks. Of course, it is not necessary (or even desirable) to express all kinds of variation taxonomically, but it is very helpful to have the means available for doing so if it should be considered useful. Names constitute a reference point for a taxon, and focus the attention of systematists upon it. Other botanists are also far more likely to seek out and investigate named than unnamed variants. And, of course, it is vastly more convenient to be able to refer to 'var. maritima' than to 'the maritime variant of north-western Europe with fleshy leaves and a prostrate stem'.

Anyone who has studied plants intensively will be well aware that it is far from exceptional that there are infraspecific variants of particular interest that require a name. In fact the opposite is the case. A glance at 19th or early 20th century European taxonomic literature will demon-

strate that the majority of species have had infraspecific taxa described under them. A relative sparsity of such taxa from the literature of other regions (especially the tropics) is simply a measure of the paucity of investigations there. There are vast numbers of infraspecific variants that would benefit from formal taxonomic treatment.

What are the desirable features of a useful system?

The disuse of the present system is surely a vote of no-confidence; if it were useful it would be utilized. Im my opinion two major disadvantages are inherent in our present system, both of which must be replaced in any improved scheme.

Firstly, it is very often not possible to express known patterns of variation in the current hierarchical framework of categories, simply because the variation is not hierarchical. Reticulate and parallel variation patters are also very common. It is not possible at present to express in a useful way the variation in a number of independent variables within a species. Attempts to strait-jacket variation in a hierarchical taxonomic system have led to chaotic classifications in many instances. Nevertheless, variation is often hierarchical in structure, so that the means of expressing it hierarchically should still be made available. Hence one needs a flexible system that can be hierarchical but need not be so. For example, a hierarchy could be expressed by the use of prefixes alone, e.g. supervarietas, varietas, subvarietas, while non-hierarchical variation could be expressed by the use of totally different ranks (e.g. varietas, forma, etc.).

Secondly, the over-reliance on very old literature leads to much fruitless and controversial bibliographic research, the results of which even then are often equivocal. Frequently it is simply not possible to know what the original authors were intending. In the past, type specimens were not designated and authors in reality often described characters, not taxa (e.g. fleshy leaves, prostrate stems). This still happens even today (e.g. tetraploid, dwarf alpine race, plants possessing certain chemicals). Also it is often impossible to know which rank past workers were intending, e.g. subspecies or varietas, since they used other terms or were inconsistent. Therefore a system is needed which is not overburdened with bibliographic precedent. I believe that the rules of priority need to be considerably limited, and that we would probably drop altogether varietas and forma as formal ranks due to their haphazard application over a very long period.

A new improved system must be able to express meaningfully the variation we find, be reasonably straight-forward to operate in practice, and be amenable to legalization within the Code. I am convinced that such a compromise is attainable, and that the results would be of such value that determined efforts should be made to achieve it.

How should one go about making these changes?

Many people have suggested in the past various changes to the Code that have not been adopted at the appropriate International Congress, simply

because the proposals were not sufficiently well researched, discussed and advertised. Last-minute proposals by one or a few people are virtually doomed to rejection. I believe that we need to constitute a biosystematic lobby. We should construct a draft set of proposals that appear to us to satisfy our requirements, and be prepared to discuss these as widely as possible to calculate fully all their applications. After that we should be in a position to draw up a package of proposals which both meet our requirements and attract very broad support from the start. All aspects of the Code that are relevant to infraspecific variation should be considered, and proposals for radical changes should not be shirked wherever they are required. The base-line for our deliberations should not be the present system, but no system at all, for the latter is in practice rather closer to the status quo. With the rather sweeping and somewhat alarming changes that were made in the latest (Sydney) Code, the ramifications of which are not yet fully realized, we are now at a particularly appropriate time for a complete reappraisal of the means of naming infraspecific ranks.

In September 1984 a conference on 'Infraspecific classification of wild and cultivated plants' was convened at Oxford, England, by the Systematics Association. There the feeling was repeatedly expressed that an improved nomenclatural system for wild plants was needed, and a resolution was passed calling for further discussions along these lines. In my opinion the I.O.P.B. is the most appropriate body to lead these discussions, since it is international in membership and closely allied to the I.A.P.T., through which formal proposals for changes have been made. I therefore hope that we shall set an example and, along with other associations such as S.A., start the ball rolling. Please response, whether negatively or positively, either to me or to the editor of the Newsletter.

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3. PROFILE OF A LAB

by Dr. Eugenia POGAN, Professor at the Department of Plant Cytology and Embryology, Institute of Botany, Jagellonian University, Grodzka st. 52, 31-044 Krakow, Poland

The Department is the main Polish center of research in plant cytotaxonomy, cytogenetics and embryology, the Angiosperms being mostly involved. Our studies deal, for the most part, with Polish plants; in some cases, however, materials from other geographic regions are included. The principal aim of our investigations is a biosystematic interpretation of various evolutionary problems.

Areas of specialization:

I. Karyological research. Studies on chromosome numbers of Polish An-

giosperms have been started at the Department in 1946 as a team work under the guidance of Professor Maria SKALINSKA. Seventeen collective papers and many individual contributions on the subject were published since. More than 1350 species of the Polish Angiosperm flora have been studied karyologically so far; their chromosome numbers are listed in two publications. (A list of chromosome numbers of Polish Angiosperms, Part I, 1973 and Part II, 1983). Further studies are in progress.
In last years, karyological research included as well Polish and Antarctic bryophytes.

II. Studies in cytotaxonomy and cytogenetics comprise biometrical analysis of morphological characters, analysis of karyotype incl. differential staining of chromatin, cultivation in uniform conditions, experimental crosses, as well as analysis of meiosis. The problems studied: cytotaxonomical revision of some Angiosperms' taxa; karyological differentiation of plants at different taxonomical rank; chromosomal modes of speciation; putative origin and relative age of polyploids; cytogenetics of B-chromosomes; hybridization and its role in evolution; sex ratio in natural and experimental populations of dioecious species of Rumex L.

III. Embryological studies have been combined as a rule with karyological and/or cytotaxonomical and cytogenetical analysis. Not only plants from natural populations, but also material resulting from experimental treatment was analysed. The main problems investigated: biology of reproduction of apomictic taxa; biology of reproduction and embryological disturbances in taxa with restricted seed setting; embryological variability and semigamy.

IV. Cytological mechanisms of tissue differentiation: ontogenetic polyploidisation by endopolyploidy, disturbances of mitosis in ovules and anthers, changes of structure and ultrastructure of nuclei connected with polyploidisation, occurrence of giant chromosomes.

Institute members and their current research:

CZAPIK R. Biology of reproduction of taxa from the genus Rubus L. and Potentilla L. (long-term project). Biology of reproduction of Hydrilla verticillata L. fil. Casp. (in collaboration with the Botanical Garden in Dublin). Secondary nucleus in Rosaceae.
IZMAILOW R. Cytoembryological studies in Alchemilla L. (long-term project).
IZMAILOW R. and JANKUN A. Karyological differentiation within the natural populations of the apomictic complex Ranunculus cassubicus L. Karyological analysis of Salix L.
JANKUN A. Cytoembryological studies in Sorbus L. (long-term project).
JOACHIMIAK A. Origin, structure and cytogenetics of B-chromosomes in plants.
KUTA E. Biosystematic analysis of monospecific and hybrid populatioons of Viola section Viola (long-term project).
KUTA E. and PRZYWARA L. Chromosome studies on Polish bryophytes (long-term project, in collaboration with the Institute of Botany of the

Polish Academy of Sciences).
MALECKA J. Long-term projects: Cytotaxonomy and embryology of the representatives of Taraxacum Zinn. Cytotaxonomical and embryological studies on Solidago L. from Polish and Canadian populations. Chromosome numbers in Rosa L. (in collaboration with High Pedagogical School in Krakow).
POGAN E. Karyological structure of natural populations of Hieracium pilosella L. in Poland.
POGAN et al. Further studies in chromosome numbers of Polish Angiosperms (long-term project).
POGAN E. and WCISLO H. Karyotype structure and biology of reproduction of the European taxa of Ranunculus ficaria (long-term project).
RYCHLEWSKI J. Long-term projects: Sex ratio in natural and experimental populations of Rumex (in collaboration with the Institute of the Polish Academy of Sciences). DNA replication and mitotic cycle in Melandrium L.
TRELA-SAWICKA Z. Biology of reproduction in Convallaria maialias L. Development and differentiation of tapetum in Araceae (long-term project).
TURALA-SZYBOWSKA K. Ultrastructure of endopolyploid nuclei in antipodals of Ranunculaceae (long-term project).
WCISLO H. Embryological studies in Campanulaceae: Adenophora liliifolia L. Bess.

Recent publications

a) In Acta Biologica Cracoviensia, Ser. Bot. 24, 1983:
IZMAILOW R. Further karyological studies in species of Alchemilla L. from the series Calycinae Bus. (section Brevicaulon Rothm.). 127-141.
JOACHIMIAK A. Cytogenetics of standard B-chromosomes in Phleum Boehmeri from Poland. 63-77.
KRZAK J. Chromosome numbers within Polygonum aviculare L.s.l. from Poland. 1-10.
MALECKA J. Further embryological studies in the genus Taraxacum L. 143-157.
MALECKA J. and POPEK R. Karyological studies in the Polish representatives of the genus Rosa L. I. 79-90.
POGAN E. et al. Further studies in chromosome numbers of Polish Angiosperms. Part XV, 91-128; Part XVI, 159-189.
WEDZONY M. Endopolyploidy and structure of nuclei in the antipodals and synergids of Ranunculus baudotii Godr. 43-62.

b) In Acta Biologica Cracoviensia, Ser. Bot. 25, 1983:
CZAPIK R. The secondary nucleus in four species of the genus Rubus. 179-188.
POGAN E. et al. Further studies in chromosome numbers of Polish Angiosperms. Part XVII, 57-77.
POGAN E. and WCISLO H. Studies in Ranunculus ficaria L. VI. Cytoembryological analysis of triploids from Poland. 43-35.
POGAN E. and WCISLO H. A list of chromosome numbers of Polish Angiosperms. Part II, 103-172.
PRZYWARA L. Karyological studies in Myosotis sparsiflora Mikan. from Poland. 79-84.
PRZYWARA L. Further karyological studies on the series Palustres M. Pop. of the genus Myosotis L. from Poland. 85-101.

TURALA-SZYBOWSKA K. Disturbances in pollen development in diploid cytotype of Ranunculus fluitans Lam. 15-27.
WCISLO H. Cytological observations on Campanulaceae from Poland. 1-13.

c) In other journals:
CZAPIK R., 1984: Embryological problems in Rubus L. Materials from International Symposium on Fertilization and Embryogenesis in ovulated plants, 1983, Bratislava (Czechoslovakia).
KORNAS J. and JANKUN A., 1983: Annual habit and apomixis as drought adaptations in Selaginella tenerrima. Bothalia 14, 647-651.
KUTA E., PRZYWARA L. and OCHYRA R., 1984: Chromosome studies on Polish bryophytes. I. Bryologische Beiträge 3, 28-45.
OCHYRA R., PRZYWARA L. and KUTA E., 1982: Karyological studies on some Antarctic liverworts. J.Embryol. 12, 259-263.
PRZYWARA L. and KUTA E., 1983: An acetic-haematoxylin method for cytological investigations of bryophyta. The Bryologist 86, 141-143.
PRZYWARA L., OCHYRA R. and KUTA E., 1983: Chromosome studies in Polish bryophytes. II. Lindbergia 178-185.

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4. RESEARCH NEWS

A. AFRICA
No reports.

B. ASIA

Pakistan

Professor Dr. ALI S.I., Department of Botany, Dean of the Faculty of Sciences, University of Karachi, Karachi, Pakistan. Dr. ALI is member of numerous scientific organizations in his own country and abroad.
Publications: Flora of Pakistan - Accounts of 158 families have already be published during the last 14 years. This publication received very favourable international reviews (ed.). Flora of Pakistan Project is being continued.

C. AUSTRALASIA
No reports.

D. EUROPE

Finland

Department of Botany, University of Turku, SF-20500 Turku 50, Finland

Lic. phil. Arja OJALA. Current research: Thesis on infraspecific variation of Angelica archangelica in Fennoscandia, and the Papaver project (mentioned below).
Dr. Orvokki RAVANKO. Current research: Cytotaxonomy of Vaccinium subg. Oxycoccus in Finland. She is also continuing her research on Algae, par-

ticularly Chara, which she is studying morphologically and cytologically. Planned research: Karyological work on a wider variety of Algae, especially Baltic species.
Professor Arne ROUSI is participating in two major research projects. One (together with OJALA A.) concerns interspecific hybridization in Papaver Sect. Oxytona and P. somniferum. Meiosis, C-banded karyotypes and alkaloid content are being studied, the alkaloids in collaboration with WIDEN C.-J. and PYYSALO H. (Helsinki). The other project concerns the infraspecific variation of three endemic Andean tuber crops (Ullucus tuberosus, Tropaeolum tuberosum and Oxalis tuberosa), using a wide material collected on expeditions to Peru in 1982 and 1983 by a group of students from the University of Turku. Variation in morphology, cytology, reproductive output and reaction to daylength is being studied by a group including Jukka SALO, Matti YLIREKOLA, Risto KALLIOLA, Leena PIETILÄ and Paulöa JOKELA, all at the Institute of Biology, University of Turku.
Dr. Terho VALANNE. Current research: Interspecific hybrids, artificial polyploidy and induced mutations in Betula.
Cand. phil. Matti SULKINOJA is collaborating in a study of the large-scale interspecific hybridization taking place in Lapland and producing various forms of "Lapland birch", one of the most important research objects of the Kevo Subarctic Research Institute of this University. Some students are participating in other special problems of Betula and Populus.
Cand. phil. Juha VILKKI is studying microevolution and reproductive strategies of Allium (especially A. schoenoprasum) along the succession gradients of the SW archipelago of Finland. He will spend the year 1985 working at the Unit of Plant Population Biology, School of Plants Biology, Bangor, U.K., under the guidance of Professor John L. HARPER.

Germany

Dr. HURKA A., Professor at Institut für Biology, Spezielle Botanik, Barbarastrasse 11, D-45 Osnabrück, is Professor for Systematic Botany and Director of the Botanic Garden at the University of Osnabrück. Current research: Phenotropic and genotypic variation within and between Capsella populations, biosystematics and population biology of cruciferous taxa.

Dr. SAUER W., Professor at Institut für Biologie I, Lehrstuhl für spezielle Botanik, Universität Tübingen, Auf der Morgenstelle 1, D-7400 Tübingen, completed projects and published papers on Moehringia, Magnoliales, Pulmonaria, perennial Avena. Current research: Systematics of perennial genera: Avenula, Helictotrichon.

Netherlands

Dr. DEN NIJS J.C.M., Hugo de Vries Laboratory, Plantage Middenlaan 2a, NL-1018 DD Amsterdam, published papers on Rumex acetosella complex and biosystematics of Taraxacum. Current research: Biotaxonomy of Rumex acetosella. Biosystematics of Taraxacum, mainly section Taraxacum.

Poland

Dr. CZAPIK Romana, Professor at the Department of Plant Cytology and Embryology, Jagellonian University, Grodzka 52, 31-044 Krakow, is member

of IOPB since 1962. She published studies on cytoembryology and reproduction of the taxa of genera: Ornithogalum, Adoxa, Potentilla, Rubus, Waldsteinia. Embryological and biosystematic studies on Arabis hirsuta complex (with Dr. I, NOVOTNA, Prague). The projects on embryology and reproduction of Ornithogalum, Adoxa and Potentilla are completed, studies on taxa from the subfamily Rosoideae are started.

Portugal

Current research at Universidade de Coimbra, Faculdade de Ciencias e Tecnologia, Instituto Botanico, Dr. Julio Henriques, 3049 Coimbra.
Dr. ALMEIDA M.T.M. Narcissus, Vicieae (Portugal), Ophrys, Databases, medicinal plants (Portugal), Flora Iberica.
Prof. Dr. FERNANDES A. Iconographia Azorica, Rumex, Polygonaceae (Portugal, Madeira, Açores), History of the Botany in Portugal.
FERNANDES R.. Verbenaceae, Flora Zambesiaca, Iconographia Azorica.
LEITAO T. Campanulaceae, Gentianaceae, and Primulaceae from Portugal: karyology).
NOGUEIRA I. Aspleniaceae and Pteridaceae (Flora Iberica), Gentianaceae (Flora Zembesiaca), Rubiaceae (Flora Angola), Iconographia Azoricae, Flora Iberica.
ORMONDE J. Aspleniaceae and Blechnaceae (Flora Iberica), Pteridophyta (Macaronesia), Polygonaceae (Flora Zambesiaca), Iconographia Azorica, Flora Iberica.
PAIVA J. Polygalaceae; Anonaceae and Rutiferae (Africa), Flora Iberica, Iconographia Azorica.
QUEIROS M. Spermatophyta (Portugal and Açores, Karyology), Iconographia Azorica, Pteridophyta, Flora Iberica, Karyology.
SALES F. Gramineae (Europe), Bromus, Flora Iberica.

Spain

Dr. CARDONA M.A., Departament de Botanica, Facultat de Ciencies, Universitat Autonoma de Barcelona, Bellaterra (Barcelona). Dr. CARDONA is Director of this Department; she is responsible for a research group in biosystematics.
Recent publications:

CARDONA M.A., 1983: Aportacio al coneixement de la flora Balear. Fol. Bos.Misc. 3, 35-42.
- 1983: Botanica. Fasc. V. In: J.M. VIDAL, Enciclopedia de Menorca. Obra Cultural Balear de Menorca. Cuitadella. 26 pp.
- 1983: Botanica. Fasc. VI. In: VIDAL J.M., Enciclopedia de Menorca. Obra Cultural balear de Menorca. Cuitadella. 19 pp.
- 1983: Botanica. Fasc. VI. In: VIDAL J.M., Enciclopedia de Menorca. Obra Cultural Balear de Menorca. Cuitadella. 19 pp.
- 1983: Cytotaxonomie et différenciation évolutive de quelques Rubia méditerranéennes. Acti IV Congresso O.P.T.I.M.A. Webbia (in press).
- and CONTANDRIOPOULOS J., 1983: IOPB Chromosomic numbers reports (presented by L. LöVE). Taxon 32(2), 320-324.
- and CONTANDRIOPOULOS J., 1983: Caractère originale de la flore endémique des Baléares. Bot.Helv.
- LLORENS LL. and SIERRA E., 1983: Etude biosystématique de Dorycnium pentaphyllum Scop. subsp. fulgurans (Porta) comb. nova, endémique des Baléares orientales. Coll.Bot. 14, 133-150.
- LLORENs LL. and SIERRA E., 1983: Dorycnium pentaphyllum Scop. subsp.

fulgurans (Porta) comb. nova: étude biosystématique. Rapp.Comm.Int. Mer Möd. (C.I.E.S.M.). Monaco.

Switzerland

Dr. AESCHIMANN D., at Conservatoire botanique, case postale 60. CH-1292 Chambésy/Genève. Completed project: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin.
Recent publications:

AESCHIMANN D., 1983: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Nouvelles localités pour les sous-espèces glarcosa et prostrata. Candollea 38, 211-216.
- 1983: Le Silene vulgaris s.l. (Caryophyllaceae), évolution vers une mauvaise herbe. Candollea 38: 575-617.
- and BOCQUET G., 1983: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Notes nomemcloturales. Candollea 38, 203-209.
- 1984: Un exemple d'évolution vers le caractère "mauvaise herbe": le cas du Silene vulgaris s.l. (Caryophyllaceae). Rech.Agronmom. Suisse 23(1,2), 121-130.
- 1984: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Morphologie de la graine. Candollea 39, 135-149.
- 1984: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Typification du subsp. marginata (Kit.) Hayek. Candollea 39, 395-397.
- 1984: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Tratement numérique des populations des Alpes et de quelques chaînes voisines. Candollea 39: 399-415.
- 1984: Etude biosystématique du Silene vulgaris s.l. (Caryophyllaceae) dans le domaine alpin. Bibliographie. Candollea 39, 417-422.

E. NORTH AMERICA
No reports

F. MESOAMERICA
No reports

G. SOUTH AMERICA

Venezuela

RAMIREZ N., Universidad Central de venezuela, Fac. Ciencias, Escuela de Biologia, Dpto. de Botanica, Apto. 21201, Caracas, Venezuela.
Publications:

RAMIREZ N. and ARROYO., 1982: Bol.Soc.Ven.Cienc.Nat. 140, 291-311.
SOBREU H.A. and RAMIREZ N., 1983: Biotropica 15(3), 161-169.
RAMIREZ N. et al., 1984: Am.J.Bot. 7(2), 273-280.

Mr. RAMIREZ started the project "Reproductive Biology in Several Ecosystems in Venezuela.

5. JAPAN 1984

by William F. GRANT, the IOPB President, Department of Plant Science, P. O. Box 282, MacDonald College of MacGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 1CO.

From May 15 to June 14 I was in Japan as a Research Fellow of the Japan Society for the Promotion of Science (JSPS). I lectured on my research but was especially invited to speak on Biosystematics: Past, Present and Future. I spoke at six Universities, meetings being arranged by my host, Dr. Ichiro Fukuda of Tokyo's Woman's Christian University.

From Tokyo I went to Tsukuba, 80 km northeast of Tokyo. This is a new University-Research science "show" complex, known as Tsukuba Science City, and host of the 1985 Science Fair. Buildings cover a 4x1 km (2.7 ha) area, and all have been built within the last 10 years. Dr. Mitsuo Chihara (electron microscopic studies on algae) is Chairman of the Department of Botany. I also met Dr. M. Suzuki from Ibaraki University, Mito, Japan. The Tsukuba Botanic Garden is part of the National Museum System and comprises 28 ha. It has been entirely planted within 10 years and has a computer controlled greenhouse. Dr. T. Tateoka (Poa) and Dr. Y. Hashimoto (Viola) are two of the Professors at the Botanic Garden. Dr. Hatsuto is working on Cornus.

At Kyoto University, I met Drs. M. Hotta (Flora of Sumatra), Morata (Flora of Japan) and H. Koyama (curator of the herbarium). I also met Dr. H. Okada (cytogenetics) who came from Osaka University.

At the University of Hiroshima, I met Dr. R. Tanaka who is carrying out extensive cytogenetic studies, especially on orchids, and tissue culture studies on many species, including medicinal plants. At Hiroshima Prof. H. Ando is studying the taxonomy of mosses. Dr. H. Fujishima came to my lecture from Totori University (Ranunculus), Totori. The Hiroshima Botanic Garden has been built within the last eight years (Dr. Karasawa, Director, orchid specialist). The garden (17.6 ha) contains an observation tower from which you can see the Inland Sea. There are a number of new greenhouses of which the largest is completely automated. Some 8000 species have been planted. One section of the garden is laid out in a phylogenetic sequence.

In Hiroshima I met my former student Koji Iiyama who is now a biology high school teacher.

The Hiroshima Bomb Site is now a beautiful park with trees dominating the many statues erected to commemorate the atrocity. The landscape is no longer barren as I saw in 1968 after the International Congress of Genetics.

I next visited Hokkaido University at Sapporo. There I met Drs. T. Yoshida (see weed taxonomy), S. Tanifuji (molecular cytology), K. Ito (ecology), S. Sasaki (plant physiology) and T. Kinoshita (plant breeding). Hokkaido being the first Agricultural College and the oldest University, has produced many well-known Japanese scientists including Kihara (cytogenetics). A monument was erected to Kihara in 1976 for his pioneering studies on economic species and hybrids (including the seedless watermelon). My former student, Dr. Minoru Niizeki (tissue culture of soybean, rice, Malus) came to see me from Hirosaki University, Hirosaki.

At Toyama University on the west coast, I visited Dr. S. Kawano (popu-

lation genetics) who will join the Department of Botany, Kyoto University, in September. I also met Dr. N. Naruhashi (Rubus in Asia), and Dr. T. Oritani from Toyama College of Technology.
At Tokyo Woman's Christian University, my host University, I had discussions with several staff members including Drs. Yasuko Tonomura (Drosophila), Sizui Yazawa (cytology and morphology of plants) and Dr. H. Toriyama (sensitive plants, Mimosa, Albizzia, plants showing advance warnings of earthquakes, volcanoe eruptions, tornados). Some individuals who came to my lecture from the Tokyo area included Dr. Nobunori Tanaka whom I had met in 1958 at the International genetics Congress in Montreal. Dr. Tanaka is retired from Tokyo University but is now teaching at Teikyo University. Others included Drs. M. Kimata and M. Saikawa (Tokyo Gakugei University), M. Kamanoi (Tokyo University f Agriculture), J. Imakiire and Y. Hoshino (Tokyo University of Agriculture and Technology), S. Hagiwara (Institute for Nature Study, National Science Museum), Noriyuki Tanaka (Teikyo University), and K. Nobushige (Dokkyo University, Souka, Japan).
In all Universities, I met enthusiastic graduate students wishing to show their experiments in progress. I was very impressed with the high quality of work and equipment.
I am grateful to many of the above Botanists for a most pleasant visit to Japan, and especially to Dr. Fukuda (Trillium cytogenetics) who coordinated my visitation program with JSPS and arranged my schedule both scientific and for leisure activities which included beautiful shrines of Japanese gardens.

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6. PUBLISHING NEWS

Directory of Canadian Field Research Stations: Over 175 field stations are included; these are located in all 12 Canadian provinces and territories and include a substantial number in the arctic and boreal regions. Maritime stations are are also included. For each station details are provided for location, facilities, and availability to researchers. The Directory costs can.dol.10.- and is available from M.B. Fenton, Secretary, Biological Council of Canada, Department of Biology, Carleton University, Ottawa, Ontario K1S 5B6, Canada.

Plants Biosystematics, edited by William F. Grant. Proceedings of the IOPB Symposium "Plant Biosystematics: Forty Years Later", held at McGill University, Montreal, July 1983. Published by Academic Press Canada, 55 Barber Greene Road, Don Mills, Ontario M3C 2A1, Canada. US dol. 49.50. 674 pp.

Index to Plant Chromosome Numbers Reported in Chinese Literature (in preparation), by Hsu Ping-sheng, Department of Biology, Futan University, Shanghai, China and Gu De-xing, Department of Agronomy, College of Agriculture, Nanjing, China.
From the preface:
There is a tremendous amount of literature with regard to plant chromosome numbers. The compilations published so far provide a reasonably

complete coverage of all plant chromosome counts reported to the end of 1978. Yet most investigations of chromosome numbers in China were carried out during the last few years. Moreover, many chromosome counts are reported in obscure or rare publications. It is, therefore, desirable to compile a first index including as many as possible of plant chromosome counts heretofore recorded in the Chinese literature.
The present Index summarizes the results of investigations of chromosome numbers described in Chinese literature up to the present. Some new data on chromosome numbers investigated recently by the present authors and their colleagues are also included.
For the convenience of Chinese users, the names of families and their taxonomic limits of Pteridophyta, Gymnospermae and Angiospermae in this Index are consistent with those adopted in Iconographia Cormophytorum Sinicorum Tomus I-V (1972-1976), but the arrangement of families within each of the above major groups follows the alphabetical order.
For each specific or infraspecific name, chromosome numbers of somatic cells (2n) and cells of reproductive organs (n) are given separately. Chromosome numbers of haploids, polyploids and hybrids obtained experimentally are not given.
The Index will be published in Observatio et Studium Naturae of Shanghai Museum of Natural History in 1984.

Curtis's Botanical Magazine published since 1787 by the Royal Botanic Garden, Kew, will become The Kew Magazine as of May 1984, and published quarterly. Subscription £30 for UK subscribers; £35 (or US dol.45) for overseas subscribers. Order from Marston Book Service, 108 Cowley Road, Oxford, U.K. In addition to the life-size plant portraits as in the past, there will be more pages with features on plant ecology, plant conservation, plant cultivation and exploration.

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7. MEETINGS

1985 January 14-15, Biometrical Problems in Population Biology. Oslo, Norway. For information write to: J. Stene, Institute of Statistics. University of Copenhagen, Studiestraate 6, DK-1455 Copenhagen, Denmark.

May 21-25, International Rice Genetics Symposium. International Rice Research Institute, Manila. Contact Dr. H.I. Oka, National Institute of Genetics, Yata 1, 111 Misima, Sizuoka-ken, 411, Japan.

July 2-5, 1st Cuban Symposium of Botany, Havana, Cuba. For information write to: Comite Organizador del I Symposio Cubano de Botanica, Instituto de Botanica, Academia de Ciencias de Cuba, Calzada del Cerro 1257, Cerro, Cuidad Habana 6, Cuba, Gaveta Postal 20006.

August 12-16, Symposium on Taxonomy of Cultivated Plants.
Only during the last fifty years or so has the importance of the taxonomy of cultivated plants begun

to be recognized by horticulturists, botanists and scientists in related disciplines. The symposium is intended to be the first of a series to stimulate discussion, debate and research on the subject. Programme: The symposium will be divided into six not-overlapping sections covering classification, nomenclature, identification, international registration, research methods and documentation. For further information, please write to: International Agricultural Centre (IAC), P.O.Box 88, NL-6700 AB Wageningen, The Netherlands. Telex 45888 NL, Telephone 08370-19040.

August 27-29, Symposium on Biosystematics in the Nordic Flora. In 1985 the Bergius Botanic Garden at Stockholm University will celebrate a jubilee of 100 years. On this occasion a symposium "Biosystematics in the Nordic Flora" will be held. Speakers have been invited primarily from the Scandinavian countries to present topics on particular Nordic plant groups as well as some more general subjects. All papers will be read in English. On the 30th of August an excursion is arranged in the Stockholm archipelago. For further informations, please write to: Bergius Botanic Garden, Box 50017, S-104 05 Stockholm, Sweden.

1986 July 13-18, IOPB Symposium Zürich, Switzerland (For details see Newsletter No. 2, page 18).

July 27- August 2 International Association for Plant Tissue Culture, University of Minnesota, Minneapolis Campus, USA. Please contact Dr. J.M. Widholm, Secretary, Dept. Agronomy, University of Illinois, 1102 S. Goodwin, Urbana, Illinois 61801, USA.

August 11-20, 22nd International Horticultural Congress (IOBS) Davis, California, USA. For information write to: Conference Services, Memorial Union, University of California, Davis, California 95616, USA.

October 6-11, Fifth International Barley Genetics Symposium, Okayama, Japan. Contact Prof. S. Yasuda, Institute for Agricultural and Biological Sciences, Okayama University, Kurashiki, 710 Japan.

1987 late March, 12th World Orchid Conference, Tokyo, an extended session will be held in Hiroshima. Programm chairman: Prof. R. Tanaka, Botanical Institute, Faculty of Science, Hiroshima University, Higashi Senda-machi, Naka-ku, Hiroshima, 730 Japan.

1988 XVI International Congress of Genetics, Toronto, Ontario, Canada. For information write to Dr. R.H. Haynes, Department of Biology, York University, 4700 Keele St., Downsview, Ontario, Canada M3J 1P3.

8. REQUESTS FOR MATERIAL AND INFORMATION

Dr. AESCHIMANN D., Conservatoire Botanique, Case postale 60, CH-1292 Genève-Chambésy, Switzerland, would appreciate materials of Silene Sect. Inflatae.

Dr. BRANDENBURG W.A. and Dr. VAN DER VOOREN J.G., Agricultural University, Department of Plant Taxonomy, Haagsteeg 3, NL-6708 Wageningen, The Netherlands, would appreciate seeds of Clematis viticella L. and Clematis campaniflora Brot., collected from natural sites. Data about location and period of sampling would be most welcome. Clematis viticella is important for cultivation. Already long ago many cultivars have been raised within this species. C. viticella is also involved in interspecific hybridization, resulting in many well known large-flowered Clematis cultivars. The authors now try to describe on an experimental base the infraspecific variation of this species and to characterize its affinities to closely related species as e.g. C. campaniflora.

Dr. CARDONA M.A., Departament de Botanica, Facultat de Ciencies, Universitat Autonoma de Barcelona, Bellaterra (Barcelona), Spain, would appreciate seeds and herbarium sheets of Rubia.

Prof. Dr. A. HURKA, Institut für Biology, Spezielle Botanik, Barbarastr. 11, D-45 Osnabrück, FRG (Federal Republic of Germany), would appreciate seeds of Cruciferae collected in natural sites.

Dr. E.R. KALKMAN, Agricultural University, Department of Plant Taxonomy, Haagsteeg 3, NL-6708 Wageningen, The Netherlands, would appreciate, for a cytotaxonomic study of Allium sect. Schoenoprasum G. Don, the following materials (wild, weedy and landraces): A. cepa L., A. ascalonicum non L. (shallot), A. oschaninii O. Fedtsch., A. galanthum Kar. & Kir., A. vavilovii M. Pop. & Vved., A. Fistulosum L., A. altaïcum Poll., A. schoenoprasum L. and A. ledebourianum Roem & Schult.

Dr. DEN NIJS M.C.M., Hugo de Vries Laboratory, Plantage Middenlaan 2a, NL-1018 DD Amsterdam, The Netherlands, would appreciate seeds and herbarium specimens of Taraxacum.

Dr. E.H. OOST, Agricultural University, Department of Plant Taxonomy, Haagsteg 3, NL-6708 Wageningen, The Netherlands, would appreciate seeds of Brassica species with 2n=20 for a biosystematic study in Brassica. Especially important would be seeds from wild or weedy plants of the cultivated species and from wild Brassica species (2n=20). Cultivated Brassica species include B. rapa L. (syn. B. campestris L., turnip, turnip rape, etc.), B. chinensis L. (Pak-Choi), B. pekinensis (Lour.) Rupr. (Pse-Tsai = Chineese cabbage), and some species of minor importance without known close wild relatives. Wild Brassica species with 2n=20 have their main distribution in southern Europe and the Mediterranean. They include B. tournefortii Gouan, B. repanda (Willd.) DC, B. barrelieri (L.) Janka. The seed samples need to be at least accompanied by data and place of collection.

Prof. Dr. W. SAUER, Institut für Biologie I, Lehrstuhl für spezielle Botanik, Universität Tübingen, Auf der Morgenstelle 1, D-7400 Tübingen, FRG, would appreciate materials of Pulmonaria from USSR, Balkans and Italy.

Dr. DE VRIES I.M., Agricultural University, Department of Plant Taxonomy, Haagsteg 3, NL-6708 Wageningen, The Netherlands, would appreciate, in connection with the research project, "Biosystematic studies on cultivate lettuce (Lactuca sativa L.) and closely related wild species" (L. saligna L., L. serriola L. and L. virosa L.), started in June 1984, wild seed material of the following species: Lactuca sativa L., L. serriola L., L. saligna L., L. virosa L., L. augustana Reichb. ex Nam., L. altaica Fisch. et Meg., L. livida Boiss. et Reut. in Boiss., L. sagittata Waldst. & Kit. The aim of the project is to obtain a clear overview of the infra- and interspecific variation of the four species.

Dr. TAPIA L., Director of Servicio de Teledocumentacion Biblioteka, Facultad de Biologia, Universidad de Barcelona, Avda Diagonal 645, Barcelona 28, Spain, sent us the following request: We are the Teledocumentation Service of the Faculty of Biology in Barcelona and we are interested in computer databanking in relation to botanic systematics and especially in chromosomic number databanking. We would very much appreciate if you could inform us about your work in these fields and also if you could send us the name and address of other scientists working on these subjects.

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9. MISCELLANEOUS NOTES

In 1983 at a metting on plant herbivore interactions, an International Society of Chemical Ecology was founded. For information write to: International Society of Chemical Ecology, Inc. 101 T.H. Morgan Building, University of Kentucky, Lexington, Kentucky 40506, USA.

125th Anniversary of the Herbarium at the Swiss Federal Institute of Technology, Zürich.
The Herbarium SFIT Zürich, international code: ZT, was founded in 1859. It is the third oldest herbarium in Switzerland, after those in Basle (founded 1588/1589) and Geneva (founded 1817). The collections comprise about two million specimens, the proportion: Phanerogams/Cryptogams being 1:1.
During the anniversary reception on December 4, 1984, a special exhibition was open to public.

Jubilee of the Bergius Botanic Garden, Stockholm.
Writes Dr. Bengt Jonsell, Director of the Botanic Garden and Professor Bergianus at the Royal Swedish Academy of Sciences: In autumn of 1985 100 years have passed since the Bergius botanic garden was moved to its present place, Frescati, at Lake Brunnsviken in the northern part of Stockholm. In 1969 most of the garden at Frescati was transferred to the

government to become the Stockholm University botanic garden. The jubilee-celebrations will take place on the 29th of August 1985. The restored greenhouse for tropical aquatic plants will then be inaugurated by H.M. the Queen. On the 30th of August, an excursion for all guests will be arranged to the skerries east of Stockholm. Stockholm University and the Royal Swedish Academy of Sciences are behind the arrangements. As part of the jubilee a symposium devoted to biosystematics with special regard to the Nordic flora is planned (see the column "Meetings" in this issue).

IOPB Symposium 1986: news from the organizing commitee

The preliminary announcement of our Symposium "Differentiation patterns in higher plants" has received an excellent response. We planned 120 participants; by November 30, 1984, we got 120 answers, 30 countries (from Austria to New Zealand) being represented. In addition to 15-17 invited speakers, about 80 potential participants would like to contribute posters - we are going to be rather busy. Thank you for your interest.

The first circular shall be sent, in spring 1985, to all persons who wished to be placed on the mailing list.

The new addresses

Dr. Kent E. Holsinger, Department of Biological Sciences, Stanford University, Stanford, California 94305, USA. (Formerly University of California, Berkeley).

Prof. Dr. Schoichi Kawano, Dept. of Botany, Faculty of Science, Kyoto University, Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto, Japan 606. (Formerly Toyama University).

PERSONAL DATA COLLECTION

for the International Organization of Plant Biosystematists Newsletter (IOPB Newsletters)

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Last name (Ms., Mr.) First name Title

Address

Personal News

Recent publications

Projects completed

Projects started

Requests for research material

Articles and longer reports, reports of meetings, etc., to be attached

Return to: Dr. Krystyna M. Urbanska, Editor, IOPB Newsletter,
Geobotanisches Institut ETH
Zürichbergstrasse 38
CH-8044 Zürich
Switzerland