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Dear IOPB Members,

Thank you very much for your cooperation that makes a regular publication of the Newsletter possible.

In our fifth issue, we have an excellent lead article by Dr. W. Grant; it seems that an over-eager application of chemical pesticides may have some rather funny (and I don't mean ha, ha-funny) side effects.

In the column usually given to 'Profile of a Lab', you'll find a most interesting data on biosystematic research carried out in some Scandianvian institutions (p. 5). Many thanks to Liv Borgen, Bengt Jonsell, Jaakko Nurmi and Arne Rousi for their contributions. Further news from Scandinavia (and other countries, for that matter) would be welcome - who will send a contribution for the next issue of the Newsletter?

Don't miss the latest thriller by Dr. Verne Grant (see 'Publishing News', p. 14). The focus of the fine book, dealing with evolutionary theories, is on whole organisms rather than on molecular changes or mathematical models.

In only six months from now we should meet in Zürich for the IOPB Symposium. The Second Circular has been mailed a few days ago, but it may be useful to look up the news from the Organizing Committee (p. 14).

In the column 'Meetings', not only the schedule for future meetings but also brief reports on some workshops and symposia organized in 1985 are presented. Please send in comments on meetings you've recently attended; the first-hand information certainly will be of interest for those who had to stay at home.

Data for the next issue of the Newsletter should arrive here before May 31, 1986.

Have a happy and successful year 1986

The Editor

NOTE: Please write in capital letters or use typewriter while preparing your 'Research News' sheet for the Newsletter. You don't want to have some words misspelled in print, do you?
2. LEAD ARTICLE

By William W. Grant, Department of Plant Science, P.O. Box 4000, MacDonald College of McGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 1CO

Pesticides, gin and tonic, and mutation testing

As is well documented, evolution proceeds principally as a result of four indispensable processes, namely, mutation, genetic recombination, natural selection and isolation.

A featured item in the London 'Times', in July 1985, headed 'Gin and tonic', made me recall an article I had written over a decade ago entitled 'Pesticides - Subtle Promoters of Evolution' (GRANT 1972). In this article, I indicated that some pesticides had certain attributes for the promotion of evolution. For example, some have clearly been shown to be mutagens, and can induce both gene mutations and chromosome aberrations. It is also a fact that a species could be eliminated as a result of its genetic susceptibility to a pesticide.

Throughout the ages there has been the elimination of species. This has made it possible for other species to rise and become dominant. As a result, it is estimated that only about 1% of the species which have evolved are present on earth today - 99% have become extinct. Is the human species in peril?

The London Times article stated that the health risk to those individuals who drink 'Gin and Tonic' is greatly elevated from the fungicide sprayed on lemons after harvest. In England, the permissible level of fungicide in the wax-fungicide mixture sprayed on lemons is 10 ppm, but it has been found that lemons sold in London shops regularly have as high as 200 ppm of fungicide on them. Now, when the lemon floating in the gin and tonic, the alcohol causes a chemical reaction and releases the fungicide into the drink to a level nearly 20 times higher than the recognized level. It is stated that individuals 'who assume large quantities of the mixture would be at much greater risk of sclerosis of the liver'. All populations are genetically variable. Therefore, selection resulting from continued application of pesticides will lead to individuals becoming resistant. Perhaps we can rejoice that some of us may possess resistant genes.

Our greatest knowledge on this aspect has been obtained in the area of gene resistance to insecticides. It is now known that over 400 species of agricultural pests are resistant to one or more insecticides. The early success and abrupt failure of chemical pesticides is reflected in the fact that in the 1940's around 7% of all U.S. agricultural crops were lost to insects, whereas the corresponding figure is now 13% (May, 1985; GRANT 1972 for earlier references). What is not as well documented is the fact that many plants may become resistant to pesticides also; (GRANT 1972).

However, the concern for genetic damage to humans (and the flora and fauna) due to pesticide exposure from environmental, agricultural, or occupational exposure has brought about a justified demand for improved methods by which genetic hazards can be detected. A number of plant genetic test systems have been developed which are excellent for the detection of chromosome aberrations and gene mutations (GRANT et al. 1981, GRANT 1982; GRANT and ZURA 1982). There are sufficient data in the literature to show that plant systems can detect a wide range of genetic
damage including the induction of gene mutation, chromosomal aberration and aneuploidy, and there is a high correlation between chemicals showing positive results in plant assay systems and assays using mammalian cells in culture. These plant test assays have been part of the U.S. Environmental Protection Agency’s 'Gene-Tox' program (CONSTANTIN and OWENS 1982). The author has advocated the use of plant genetic assays for first tier screening of chemicals to full scale costly mammalian tests (GRANT 1978). It has been well established that plant assay systems can be conducted with minimal technical requirements, and training, which makes their use important for developing countries.

Pesticides imported by developing countries today account for over a billion dollars (US) annually, up from US $641 million only a decade ago (MPINGA 1985). However, there is a problem; developing countries face a double standard approach to the issue of chemical safety. Many Western governments which have banned or adopted stringent regulations on the sale of chemicals within their own countries, still allow the manufacture of the same products for export. As a result, chemicals that could not stand up to the safety demanded by health-conscious consumers in most Western European countries and in the United States, are exported to less developed countries.

Developing countries already confronted with the overwhelming task of controlling many diseases do not have the resources to adequately grapple with the genetic dangers posed by pesticides and cannot afford expensive mammalian tests. As a result, in 1980, the International Program on Chemical Safety (IPCS) was created, which is a cooperative venture of the UN Environment program, the International Labor Organization and The World Health Organization. Some of the IPCS program objectives are: to carry out and disseminate evaluations of the risk to human health from exposure to chemicals based on existing data (ANON. 1983); to encourage the use, improvement and the validation of methods for laboratory testing; and to promote training of the manpower needed for testing and evaluating the health effects of chemicals (MERCIER and DRAPER 1984). The less costly plant test assays could benefit developing countries, thus helping to achieve some of these goals.

At an IPCS meeting in Brussels, in November 1984, scientists who use plant genetic assay systems for the detection of chemical mutagens were invited from a number of developing countries, and from several centers in other countries. It was recommended that an International Collaborative Study be undertaken by IPCS, in which it was proposed that a pilot study be initiated using a few specific plant systems and that the results be coordinated through regional centers. The proposed study will provide contacts for scientists in developing countries which will help them strengthen their research activities and develop programs that address the unique needs of their country. I expect that my Laboratory will be one of the coordinating centers.

References

3. BIOSYSTEMATIC RESEARCH IN SCANDINAVIA

a. Flora of Norway and Svalbard

by Liv BORGEN, Botanical Garden and Museum, University of Trondheimveien 23B, N-Oslo 5, Norway

DAHL E., HEIDE O. and SALVESEN P. (As). Experimental and plant geographical studies of alpine plants with a southwest avoiding distribution. Different hypotheses on why some plants are 'Southwest coast avoiders' in Scandinavia are tested by phytotron and transplant experiments. Especially pairs of species with/without this restriction are tested in Luzula, Salix, Alnus, Gnaphalium and other genera. The effect of varying temperatures on bud dormancy and seed germination is emphasized. Project started.

P. SALVESEN (As). Festuca ovina - F. vivipara. Ecotypic differentiation, cytology, relation between reproduction by seed and vivipary, and flowering physiology are studied. Project partly completed.


ENGELSKJON T. (Oslo). Cytotaxonomical review of the Svalbard vascular flora, with special emphasis on critical groups such as Potentilla pulchella, P. nivea, P. chamissonis, and intermediates, as well as some Monocotyledons. Project started.


b. Nordic biosystematics in Stockholm and Uppsala


The biosystematic tradition in Scandinavia goes back to years far beyond the coining of the term, now 52 years ago – from names as Göte Turesson and Ake Gustafsson it is obvious that fundamental concepts rest upon biosystematic studies in Scandinavian plant populations. I will try here to give a short review focusing on the centers of learning in Stockholm and Uppsala. It is intimately connected with the foundation of the Bergius Botanic Garden in Stockholm in 1885.

That garden had a forerunner in what is now downtown Stockholm, a place for horticultural introductions and a garden school run by Peter Jonas (a pupil of Linnaeus) and Bengt Bergius, both members of the Royal Swedish Academy of Sciences. In the 1880’s Professor Veit B. Wittrock, then Director, had to move the garden to a new site in northern Stockholm. Wittrock used the new garden for experimental cultivations of native Swedish plants with the purpose of studying their intraspecific variation. Pine trees (some still existant), violets and the twinflower (Linnæa borealis), hard to cultivate, were among his prime interests. The material was gathered from a number of scattered Swedish localities. Working before the breakthrough of genetics his results became chiefly descriptive towards little theoretical background.

Another period of biosystematics 'avant le mot' came in the 1920's and 1930's when fundamental research on roses, mainly on Rosa canina group was performed by Gunnar Tackholm and after him by Folke Fagerlind, still active in research. The heterogamic reproductive system of these roses was largely disclosed by their works, classical contributions to our science. Quite a lot of the experimental material, extensive Rosa scrub, is still to be seen in a part of the Bergius Botanic Garden. We plan to preserve a selection for the future of this scientifically most interesting material.

Nowadays biosystematics are here much in a renewed phase with a number of recently started studies and a few projects going on since a number of years. There is a significant difference in approach between these groups of project. The somewhat older ones have a cytotaxonomic fundamental aim at sampling extensively over a large area (as Fennoscandia) to cover the region well enough for veritable 'cytogeography'. A good example is a thorough study of Parnassia palustris over most of Scandinavia, where both diploids and tetraploids grow, for which morphology, ecology, dispersal history etc. are being analysed. This line of studies is now being replaced by one on a more local scale, focusing on populations within a small area which are intensely studied with ecological observations and biometrical parameters as characteristic features.

There are various reasons for this shift in approach and they are not all 'intraspecific'. One is the new Swedish concept of the Ph.D degree which, at least in theory, should be completed within four to five years. Much if not most of biosystematic research was and is performed
for doctoral theses, which means that subjects have to be accordingly adapted. Space and time will inevitably be limited and certainly money as well which make far-reaching, prolonged field trips and cultivation experiments problematic. Primarily, however, the shift in approach has been dictated by scientific reasons. Differentiation within species and species groups in our area is frequently related to a gradient from inland to exposed skerries and we have a number of entities which seem to have evolved on the young Baltic landlift shores. With flat shores lifted about 70 cm per century vast areas of new land are continuously produced.

In the Valeriana officinalis-complex V. salina of the exposed Baltic shores and Myosotis baltica of the M. laxa complex are examples of taxa being studied intensely on a fairly local scale - in the coastland along the northern Baltic and the southern Gulf of Bothnia. A number of populations are being analysed with particular emphasis on meeting zones of the entities which for the Valerianaceae imply an interplay of three since both the diploid V. officinalis s.str. and the octoploid V. sambucifolia are represented in the coastal area. The Myosotis case turns out towards a problem of small and isolated autogamous populations with particular life cycle adaptations. A long series of similar cases posing a variety of interesting problems are found in the area.

Studies of this kind may of course at later stages be extended to revisions of the more traditional type or such a goal may be reached through investigations pursued from various parts of the distribution area and combined by joint efforts.

The line towards intense local studies has become very obvious for us in a study of Swedish Ranunculus ssp. Batrachium in which it turned out that concentration on limited selected fields represents a more fruitful approach.

Studies have recently been started also in the intricate Dactylorhiza. The D. traunsteineri complex in the eastern Swedish mainland and on Gotland has for various reasons been chosen as a starting point. One is that comparisons between reasonably small isolated and variable populations are possible in two ecologically and historically very unlike areas. It is also connected to the landlift process in Uppland since D. traunsteineri is there confined to those calcareous fens at a certain level above sea from which a cut-off took place 800 to 1000 years ago. Comparisons between variable populations of other taxa in those fens would be of great interest with respect to the available time scale.

This type of research is carried out at the Bergius foundation of the Royal Swedish Academy of Sciences in Stockholm and the Institute of Systematic Botany at Uppsala University. In some aspects it comes close to, and also benefits from the ecological research on the variability of small populations led by Dr Honor Prentice at the Institute for Plant Ecology in Uppsala with rare taxa with presumed relic distributions as Gypsophila fastigiata and the Papaver radicatum group among the research objects.

A study of the history and ecology of disappearing weeds is biosystematics in traditional sense, but contributes greatly to our understanding of their variation, history, distribution, and ecology. Roger Svensson and Marita Wigren at the Institute of Systematic Botany in Uppsala are publishing a series of papers based on experimental evidence and intense field observations on Agrostemma githago, Ballota nigra, Centaurea cyanus, Nepeta cataria, and others. Such studies link biosystematics to the efforts of plant species conservation which as also incited the Dactylorhiza study mentioned above.
Some projects, primarily focused on other problems, also have biosystematic aspects. Among those are demographically oriented studies in population ecology carried out by Dr. Lenn Jerling and others in the Botanical Institute, University of Stockholm. Plantago maritima, the Spergula marina group, and the Typha hybrids are among their research objects. The pollination ecological studies performed by Dr. Anders L. Nilsson at the Institute of Systematic Botany, University of Uppsala, include detailed work on the isolation mechanisms and the amount of introgression between the orchids Platanthera bifolia and P. chlorantha.

In the outline presented above biosystematics interpreted more broadly than it has sometimes been defined in the past. I find it important to emphasize the multivarious sides of biosystematics and to point to the results in this field wherever they occur. The role of biosystematics as a link, theoretically and methodologically, between various branches of botany will hopefully increase.

c. Plant biosystematic research in Finland

by Arne Rousi, Department of Biology, University of Turku, and Jaakko Nurmi, Botanical Museum, University of Helsinki, Unioninkatu 44, SF-00170 Helsinki.

The first botanist in Finland using what we could call biosystematic methods was J.P. Nörlin (1842-1917), who carried out long-term cultivation experiments with Hieracium microspecies in connection with his systematic studies on this apomictic genus. He was very much interested in the origin of the microspecies and the significance of hybridization in this process. One of his followers in the studies of apomictic groups was Gunnar Marklund (1892-1964), a fine systematist whose special groups were Taraxacum and the Ranunculus auricomus group. Also Marklund used biosystematic cultivation studies and had a distinct evolutionary viewpoint in his research.

Professor Jaakko Jalas, who recently retired but is working actively, was the one who introduced the biosystematic research ideas and methods to the present generation. Most biosystematic work at the Department has been done either by himself or his students. His own research has for a long time been focused on Thymus, now on cytotaxonomy and chemotaxonomy of Balkan taxa of this genus (in collaboration with K.-G. Widén). Hieracium umbellatum s.l. and species of Filosella comprise another group where cytology and variation are being studied by Jalas. Thesis works led by him include a study on variation of Rumex longifolius DC. in Fennoscandia and neighboring areas (Christa Holm, finished as a licentiate thesis) and a biometric analysis of the Finnish races of Anthyllis vulneraria (Raino Lampinen).

Dr. Ilkka Kukkonen, the Director of the Botanical Museum, is continuing his studies on Cyperaceae with a biosystematic study on Schoenoxiphium (together with Kerttu Pellinen). He is also working on the cytology and variation of Veronica spicata in Finland and its possible hybridization with V. longifolia. A former student, Dr. Heikki Toivonen is continuing his studies on the biosystematics of Fennoscandian Carex, more specifically the sections Heleonastes and Ceracystis. The latter (C. flava - serotina complex) is also studied cytologically by Dr. Lisa Halkka at the Department of Genetics (see below) who uses methods of cytology, anatomy and electrophoresis to clarify the relations of taxa of this group.

Dr. Leena Hämälä-Ahti (Associate Professor of Botany) is studying the va-
traction of Juncus alpino-articulatus in North America.
Dr. Pertti Uotila is continuing his long-term biosystematic work on Chenopodium on world-wide basis and for Eurasian taxa in particular. In collaboration with Drs. Juhani Lokki and Anssi Saura (Department of genetics) chloroplast DNA analysis is now also being used to clarify the evolution and relationships of Chenopodium and allied genera. Another field of Uotila's interest is aquatic plants, especially the Finnish ones to which he is applying biosystematic methods. He has also compiled together with Kerttu Pellinen a list of chromosome counts on Finnish vascular plants, which will be published in 1986. The data for this list have been picked up from literature and from unpublished theses in Finnish universities. The compilation of such data will be continued and the authors appreciate all information on chromosome counts of Finnish plants.

Dr. Ilkka Kytövuori is continuing his studies on the biosystematics of Epilobium, particularly Fennoscandian species and the groups Palustri-formes and Alpinae. Arto Kurto is making a long-term revision of the genus Symphytum, using also biosystematic methods. Three papers from the Symphytum series have been published, the fourth is in preparation. Jaakko Nurmi is studying Finnish seashore and weed populations of Sonchus arvensis in cultivation. Risto Murto is making a study on the variation of Malus sylvestris in Finland and its possible spontaneous hybridization with cultivated members of the genus, particularly M. x domestica.

A current work on some fern groups is more loosely connected with this Department. Jaakko Sarvela and Unto Laine (the latter from the University of Turku) are studying variation and hybridization in the genus Gymnocarpium in Finland. Professor C.-J. Widén (Department of Pharmacognosy) is continuing his work on fern hybrids, particularly Dryopteris, in collaboration with several foreign specialists. These studies use both cytogenetic and chemotaxonomic methods.

As far as non-vascular plants are concerned there are long research traditions at the Department of Botany. Hans Buch (1883-1964) was much ahead of his time in his now classical cultivation experiments on liverworts during the 1920's and his thorough analysis of their environmental modifications.

The present biosystematic work on non-vascular plants is concentrated on certain groups of lichens. Professor Teuvo Ahti is studying possible introgression on the basis of morphological and chemical variation in populations of the Cladonia gracilis complex. He is also studying phenolic variation in Cladonia. The chemical variation in populations of Peltigera is studied by Orvo Vitikainen.

Department of Genetics, University of Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki.

The studies of Dr. Hannu Ahokas on the variation of wild barley (Hordeum spontaneum) populations should be mentioned in this context. At present he is studying the controlled introgression of useful genes from this species to the domesticated barley (H. vulgare). Dr. Liisa Halkka was mentioned above in connection with the Carex studies; she is also making chromosome counts of various Finnish plant species.

Department of Plant Breeding, University of Helsinki, Viikki, SF-00710 Helsinki.
The clonal diversity of Rubus arcticus in Finland is studied by Jussi Tammisola, with particular emphasis on the population structure in relation to fruiting. Hybridization programs between the species of Trifolium (particularly T. pratense and T. hybridum) with the aid of embryo culture and, alternatively, protoplast fusion are carried out by Jarmo Honkanen, Kaijy Hyyräs-Lyytkäläinen, Päivi Ryöppy and Professor P.M.A. Tigerstedt. Another large interspecific hybridization program in connection with breeding work concerns the genus Rhododendron (about 200 combinations) and is carried out by Marjatta Uosukainen and P.M.A. Tigerstedt. The collection and identification of variation in old Finnish crop plants carried out by Anne Pakkanen and Sirkka Immonen for the Nordic Gene Bank may also be mentioned in this context.

Department of Biology, University of Turku, SF-20500 Turku.

The person who started the biosystematic work at this Department was Professor Antero Vaarama (1912-1975), the eminent plant cytogeneticist and bryologist who among other things pioneered the cytological studies of mosses. He in turn had been influenced by Professor Olavi Meurman (1893-1969), the former Director of the State Horticultural Research Institute at Piikkiö, near Turku. Meurman was one of the great cytogeneticists in the 1920's and 1930's and brought many new ideas of Darlingtonian cytology to Finland.

The plant biosystematic research at this Department develops the traditions of these pioneers. Professor Arne Rousi is involved in two research programs. One of them, together with Arja Ojala, C.-J. Widén and Heikki Pyysalo, concerns interspecific hybridization in Papaver, more specifically P. somniferum and species of sect. Oxytoma. In addition to morphology and cytology, alkaloid compositions is studied in the hybrids and parents by the two last members of the group at the State Technical Research Institute, Otaniemi.

The other research program deals with variation, fertility and possibilities to create new variation in three vegetative Andean tuber crops (Ullucus tuberosus, Oxalis tuberosa, Tropaeolum tuberosum). This research was originally based on material collected on two expeditions to Peru in 1982 and 1983 by Jukka Salo, Risto Kalliola and other students of the Department. Many of these and other young people at the Department participate in the research program on the Andean tubers.

There are several biosystematic doctoral works going on. Jaakko Nurmi (now at the Botanical Museum in Helsinki) is completing this thesis on the variation of the Campanula rotundifolia complex in Fennoscandia, including chromosome counts, morphological analyses and crossing experiments. Arja Ojala is finishing her thesis on variation and reproduction of Angelica archangelica ssp. archangelica. At present she is widening her research to reproductive strategies and resource allocation models of other subarctic plant populations. Juha Vilki studies the microevolution and reproductive strategies in Allium species, especially A. schoenoprasum, in the southwestern archipelago of Finland. Associate Professor Sakari Hinneri is studying race formation in connection with his biogeographic and ecological studies of the southwestern archipelago. Chemical variation of Juniperus communis populations has been studied from this point of view in cooperation with Associate Professor Heikki Kallio from the Department of Chemistry and Biochemistry. Dr. Terho Valanne is continuing his long term research on polyploidy of Betula and Populus together with his student Elisa Särkilahti. In Betula, the morphological and cytological effects of artificial polyploidy,
in *Populus*, those of natural polyploidy are studied. Valanne is also involved in an extensive study of the variation on *Betula* populations in Lapland. This research project launched by Professor Paavo Kallio and largely carried out at the Kevo Subarctic Research Station by Matti Sulkinen, uses morphological and cytological analyses to unravel the complicated situations of introgression between *Betula* species in Lapland. Dr. Orvokki Ravanko is studying morphological and cytological variation in Finnish species of *Oxycoccus*. She has also returned to her former objects of study, the Baltic Sea algae, endeavouring to obtain information about the chromosomal relationships and more detailed knowledge about their life cycles.

Among non-vascular plants, the bryophyte *Polytrichastrum alpinum* is an object of a variational study on global basis by Matti Yli-Rekola, using taxonometric methods and also cultivation experiments. The ascomycete genus *Hyaloscypha* is studied by Seppo Huhtinen, also as a thesis work. A taxonomic monography of the genus is prepared, including rather extensive experiments of hyphal cultivation and mating.

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4. RESEARCH NEWS

A. AFRICA
   no reports
B. ASIA
   No reports
C. AUSTRALIA
   No reports
D. EUROPE

Czechoslovakia

Dr. MARHOLD Karol, Institute of Experimental Biology and Ecology of the Slovak Academy of Sciences, Department of Systematical Botany, Dubvraska cesta 14, 814 34 Bratislava, Czechoslovakia, is member of authors collective of *Flora Slovenska* (*Flora of Slovakia*), since part 4/3.
Publications in 1984:

France

Dr. VERLAQUE Régine, Université de Provence, Centre de St Charles, Cytotaxonomie Végétale, F-13331 Marseille Cedex 3, works at the C.N.R.S.
Recent publications:
Etude biosystématique et phylogénétique des Dipsacaceae, vols 1, 2, 3, 4, et 5.
Etude de la structure phytodermique des graines d'Hypericum (REYNAUD C.)
Polyphylétisme des campanules annuelles. (CONTANDRIOPULOS Z.)
Speciation dans les forêts méditerranéennes. (CONTANDRIOPOULOS, VERLAQUE, SEIDENBINDER, DONADILLE).
(no further details given)

Switzerland

Prof. REICHSTEIN Tadeus, Institut für organische Chemie der Universität, St. Johanns-Ring 19, CH-4056 Basel, has started a project on Sinopteridaceae (Pteridophyta) in Europe and Macaronesia, and on Asplenium varians group (description of new species).

E. NORTH AMERICA

Canada

Dr. BROUILLET Luc, Institut botanique et Conservateur Herbier Marie-Victorin, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, P. Québec, H1X 2B2, Canada, gives the following information about the institute:

Projects started:
1) Systematic and evolutionary studies in genus Aster L. (Asteraceae)
   - Cytogeography and infraspecific taxonomy of A. cordifolius in Québec (M.Sc., A. Legault)
   - Cytogeography of A. lanatus in Québec (M.Sc., H. Brousseau)
   - Cytogeography and taxonomy of the A. johannensis-novibelgii - 'foliaceus' complex in eastern canada (in part, M.Sc., J. Labrecque)
   - A morphological and cytological comparison of x=9 A. divanicatus and x=8 A. cordifolius in terms of their phylogenetic relationships (L. Brouillet)
   - Biosystematic study of Aster section Conyzopsis (Ph.D., Francine Houle).

2) Morphological, anatomical and systematic study in Begonia (Begoniaceae), in collaboration with denis barabe, Jardin botanique de la Ville de Montréal.
   - Leaf development and anatomy (C. Bertrand)
   - Development of some begonia and of Hillebrandia flowers (M.Sc., A. Charpentier)
   - Comparative anatomy of the mature leaf (M.Sc., A. Cuerrier)

3) Biogeography and systematics of the Gulf of St. Lawrence (eastern Canada) cordilleran disjuncts (in collaboration with Dr. Pierre Morisset, Université Laval, Québec).

Recent publications

BROUILLET L., 1985: La conservation des plantes rares: le fondement biologique. Naturaliste can. 112(2) (in press)


Dr. CHINNAPPA C.C., Department of Biology, University of Calgary,
2500 University Drive N.W., Calgary, Alberta, Canada T2N 1N4, is working on origin and evolution of polyploid complexes. The Stellaria longipes complex (Caryophyllaceae). 1) Ecological and physiological aspects of phenotypic plasticity, 2) Gentic regulation of plasticity, 3) Populations differentiation and evolution of inbreeding in the Athabasca sand dunes.

Recent publications:

U.S.A.

Dr. BROWN G.K., Assistant Professor of Botany, Department of Botany, University of Wyoming, P.O. Box 3165, Laramie, Wyoming 82071, USA, started projects on Bromeliaceae chromosomes and floral morphology for revisionary studies (together with Dr. A.J. Gilmartin, Washington State University, as well as the revision of Haplopappus section Oonopsis (Asteraceae).

Recent publications:

F. MEXICO
No reports

G. SOUTH AMERICA

Venezuela

XENA DE ENRECH Nereida, Universidad Central de Venezuela, Escuela de
Biologia, Departamento de Botanico", has completed the studies on 'Sistematica del genero Copaifera L. en Venezuela' and on 'Sistemática del genero Platymiscium Vog. en Venezuela'. Project started: Biosystematique du genre Fedia Gaertn. dans le bassin méditerrannéen occidental (carried out at C.R.N.S., Montpellier, France.

Recent publications:


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5. IOPB SYMPOSIUM, Zürich 1986: news from the Organizing Committee

The Invited Paper Programme has been completed. Invited Speakers are now expected to precise the titles of their respective contributions. Hopefully all Speakers will be able to come.

We are working now on the Poster Programme. Posters will be grouped according to their topics and presented in groups during the whole Symposium. Poster Sessions will be normally chaired; they are scheduled for the second half of the Symposium, so that all the participants should have an ample time to see the presentations and to prepare for the discussion.

Each poster will be given a short time to be discussed; its title will be entered into the programme of a given Session. In this way, posters at our Symposium will be equivalent to short oral presentations.

An Abstract not exceeding 170 words should be camera-print ready and retyped onto the sheet mailed together with the Second Circular. Please, send it back together with your registration form; remember that the number of participants is limited - if you wait too long, you may be not accepted. The Book of Abstracts will be given to all Symposium participants on registration.

Please observe the deadlines and follow exactly the information concerning the poster lay-out.

The Second Circular has been mailed some days ago to all persons who sent in the preliminary registration form.

Only six months to go now...

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6. PUBLISHING NEWS


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7. MEETINGS

Reports of meetings held in 1985:

July 4-10, Brighton, England: IIIrd Int.Congr. of Systematic and Evolutionary Botany. An open Business Meeting of the IOPB held during the ICSEB III was attended not only by members of the Executive and the Council, but also by numerous other scientists. The President, Dr. W.F. Grant reviewed the current state of affairs of the IOPB. The financial report was presented by Dr. Liv Borgen: the membership of the IOPB is steadily increasing and we are now able to finance the publication of the Newsletter. Dr. K.M. Urbanska informed about the preparatory work of the IOPB Symposium 1986.

August 27-29, Stockholm, Sweden: The Symposium "Biosystematics in the Nordic Flora" held on the 100th anniversary of the Bergius Botanic Garden, was attended by numerous scientists, mostly from Scadinavian countries. The participants enjoyed the very well organized meeting. The proceedings are now being published in 'Symbolae Uppsaliensis'.

September 9-10, Mishima, Japan: A Symposium 'Ecological and Evolutionary genetics in Plant Populations', sponsored by the National Institute of Genetics was organized by Drs I. Fukuda and K. Morishima. Scientists working on ecology and genetics discussed the concept of plant population, reproductive systems and genetic variation, the ecology of plant communities and other related subjects.

November 16, Tokyo, Japan: A Symposium 'Modern Aspects of Species' was held in conjunction with the award of the International Prize for Biology. Speakers: P.H. Raven, W.J. Bock, H.T. Imai, T. Tateoka, F. Ehrendorfer, F. Bonhomme, L.D. Gottlieb and M. Sakaizumi.

October 30-November 1, Groningen, The Netherlands: A Workshop on 'Perturbation-related mechanisms in vegetation succession in temperate grasslands' was held at the University of Groningen. In general discussion consensus has been reached to use the term 'disturbance', defined as change in conditions interfering with a normal functioning of a given biological system; the term 'perturbation' has been discarded. The proceedings of the Workshop will be published in form of a book 'Disturbance in grasslands: species and populations responses', edited by Drs van Andel, Bakker and Snaydon.

Meetings 1986

February 7-9: 18th Symposium of Plant Species Biology organized by the Society of the Study of Species Biology will be held in Kyoto, Japan. For further information contact Prof. Dr S. Kawano.

February ?: A limited conference on 'The systematic Status of Large Plant genera' will be held at the Division of Plant Industry, Black Mountain, Canberra, Australia. Contact Dr. B.A. Barlow, Head of the Australian National Herbarium, Canberra.

July 13-18: IOPB Symposium 'Differentiation Patterns in Higher Plants'
will be held in Zürich, Switzerland. Contact Prof. Dr. K. M. Urbanska, Geobotanical Institute ETH, Zürichbergstrasse 38, CH-8044 Zürich.

Note: An open Business Meeting of the IOPB will be held during the Symposium. Ideas, suggestions, constructive criticism welcome.

July 27-31: Symposium on 'Grass Systematics and Evolution', Smithsonian Institution Washington DC, USA. Contact American Institute of Biological Sciences, Washington DC, P.O.Box 27417.

September?: 9th Intern. Colloque de Cytobiologie de la Réproduction Sexuée des Archegoniates, Reims, France. Contact Prof. Dr. M. Favre Duchartre, Faculté des Sciences, Université de Reims, France.

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8. REQUEST FOR MATERIAL AND INFORMATION

Mr. BARABÉ Denis, Jardin Botanique de Montréal, 4104 est, rue Sherbrooke, Montréal, Québec, Canada H1X 2B2, would appreciate viable seeds of any Begonia species.

Dr. BROUILLET Luc, Institut botanique et Herbarie Marie-Victorin, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, P. Québec, H1X 2B2, Canada, would appreciate viable seeds and/or Herbarium specimens of the Asiatic Brachyactis ciliata Ledebour or other representatives of genus Brachyactis from Asia and mature leaf material (if possible with herbarium voucher) of Octomeles and Tetrandes (Datiscaeaceae) from southeast Asia.

Dr. BROWN G.K., Assistant Professor of Botany, Department of Botany, University of Wyoming, P.O.Box 3165, Laramie, Wyoming 82071, USA, would appreciate specimens of seeds of any Bromeliaceae.

Dr. IZMAILOW Romana, Jagellonian University, Institute of Botany, Department of Plant Cytology and Embryology, Grodzka St, 52, 31-044 Krakow, Poland, would very much appreciate living underground parts of seeds of Alchemilla pentaphyllea L., A. glacialis Bus., A. grossidens Bus., A. gelida Bus. or other taxa from the series Hoppeanae Bus.

Dr. MARHOLD Karol, Institute of Experimental Biology and Ecology of the Slovak Academy of Sciences, Department of Systematical Botany, Dubravska cesta 14, 814 34 Bratislava, Czechoslovakia, would appreciate Cardamine samples of all parts of Europe.

Prof. REICHSTEIN Tadeus, Institut für organische Chemie der Universität, St. Johanns-Ring 19, CH-4056 Basel, would appreciate fronds with spores of Asplenium from the A. trichomanes group in the Caribbean area, particularly A. nesioticum and A. vespertinum.

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9. MISCELLANEOUS NOTES

Prize. The first International Prize for Biology, in celebration of the sixty years' region of His Majesty, The Emperor Hirohito of Japan and in commemoration of his long time research in Biology, was awarded to Emeritus Professor E.J.H. Corner of Cambridge on November 15, 1985.

Change of address

BAILLARGEON Guy, formerly associated to Botanisches Museum, Königin-Luise-Strasse 6-8, D-1000 Berlin 33, is now working at Biosystematics Research Institute, Saunders Building, Central Experimental Farm, Ottawa (Ontario), Canada K1A OC6.

BRANDENBURG W.A., OOST E.H., VAN DER VOOREN J.G. and WILDERS N. Starting from January 1st, 1986, the address of the above mentioned persons (all members of the Department of Plant Taxonomy) will change from Haagsteeg 3, NL-6708 PM Wageningen to; Generaal Foulkesweg 37, NL-6703 BL Wageningen. Postal address: P.O.Box 8010, NL-6700 ED Wageningen, The Netherlands.

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PERSONAL DATA COLLECTION

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