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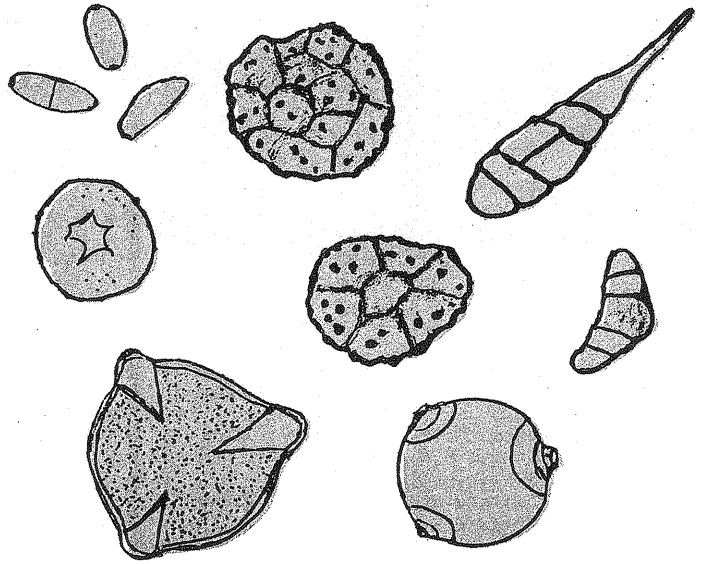
INTERNATIONAL AEROBIOLOGY NEWSLETTER

BIANNUAL PUBLICATION OF THE INTERNATIONAL ASSOCIATION FOR AEROBIOLOGY



MAY 1987

NO. 25

INTERNATIONAL AEROBIOLOGY NEWSLETTER
Number 25 May 1987

Estelle Levetin, Editor

Faculty of Biological Science
The University of Tulsa
Tulsa, Oklahoma 74104, USA

CONTENTS

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Cover Illustration - Typical mid-spring air flora in Tulsa, Oklahoma contains a great many aeroallergens including spores of *Alternaria, Epicoccum, Cladosporium,* and *Curvularia* and pollen grains of *Juniperus, Betula,* and *Quercus.*

We are interested in drawings of aerobiological materials for the cover of the newsletter. The drawings should be in black ink on white background. Submit drawings to I A Newsletter Editor, Estelle Levetin at the above address.

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A Message of Greetings to the Members of the International Association for Aerobiology

September 11th, 1974 is a memorable date in the history of the International Association for Aerobiology, because this was the day when the IAA was born--roughly twelve years ago. This birth was hailed by aerobiologists all over the world, for its ability to provide a common platform of fraternity to all members, to facilitate intensive exchange of ideas and information, and to advance research in this and allied subjects.

In the last twelve years the newborn baby has learned to walk independently, although it is still fairly young and obviously needs active support and nourishment from the members for continued healthy growth.

The Secretary-General, Dr. Spieksma, has already announced in the first circular from the new committee that the 4th International Conference on Aerobiology will be held in Stockholm in another four years, i.e. in 1990, under the auspices of the Palynological Laboratory, Swedish Museum of Natural History. The Palynological Laboratory, Stockholm, needs practically no introduction. As you all know, it is the cradle of the science of palynology and to some extent of aerobiology. Dr. Siwert Nilsson, Head of the Palynological Laboratory and former President of the IAA has been instrumental in extending this kind invitation. I feel, there can be no better venue than Stockholm to host the 4th ICA.

Our members have now a clear four years time to produce the best of results out of their research work. I sincerely expect that the presentations of their data to the 4th ICA will intensify, coordinate, and promote the academic understanding and advancement of aerobiology for the welfare of man and nature.

Lastly, I would like to thank all members of the IAA most cordially for electing me as the President of this august Association. It was a great joy for me to take over this heavy responsibility from Professor Walter Lewis, immediate Past President of the IAA, an eminent scientist and an illustrious aerobiologist. The IAA was in a very good shape under his patronage. I only wish that I shall be able to discharge the President's duties as ably as he did. It is my earnest hope that an integrity will prevail among all aerobiologists as members of the same family, no matter

where they live. There is no doubt that an all-member coordinated approach will serve to stimulate the development of aerobiology under the aegis of the IAA - "to elevate the prestige and scientific activities in a global perspective".

Sunirmal Chanda
President, IAA

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Message from the Secretary General

At the General Assembly business meeting of the IAA, on August 9th, 1986, in Basel, Switzerland, a great number of nominations and resolutions were approved. Because these business meetings, important though they are, are never the most attractive part of a scientific conference, it is understandable that only rather few members attend such meetings. In this and future Newsletters the results of the most significant decisions will be published.

In this edition of the Newsletter the new crew for IAA in the period 1986-1990 is presented:

President: Professor Sunirmal Chanda (Calcutta, India)
Vice-President: Dr. Stephen A. Hall (Austin, Texas, USA)
Secretary General: Dr. Frits Th.M. Spieksma (Leiden, The Netherlands)
Treasurer: Dr. Ruth M. Leuschner (Basel, Switzerland)
Past President: Professor Walter Lewis (St. Louis, Missouri, USA)
Members: Dr. Ursula Allitt (Cambridge, United Kingdom)
Dr. Alex I. Donaldson (Woking, United Kingdom)
Dr. Siwert Nilsson (Stockholm, Sweden)
Newsletter Editor: Dr. Estelle Levetin (Tulsa, Oklahoma USA)

Information about new committees and working groups will be published in future editions of the Newsletter.

Your new Secretary General,
Frits Spieksma

MINUTES OF THE GENERAL ASSEMBLY

August 9, 1986

THIRD INTERNATIONAL CONFERENCE
Basel, Switzerland

President Walter H. Lewis, presiding.

1. The motion to approve the agenda was approved unanimously by the General Assembly.

2. The Minutes from the previous meeting of the General Assembly were distributed three years ago without objection or correction, thus are hereby accepted.

3. Report of the President, Dr. Lewis. The membership is currently 614, representing an increase during the past four years. The international journal Grana is now associated with the IAA; IAA members can obtain Grana at a reduced cost through Dr. Hall.

4. Report of the Treasurer, Dr. Leuschner. The balance on hand as of June 1986 is Sfr19,560.95. This does not take into account all of the expenses from the Third International Conference or funds in other countries, such as USA.

5. Report of the Secretary-General, Dr. Hall. A membership drive within the last four years has resulted in 614 dues-paying members including an increase in Supporting Member institutions. IAA's association with Grana resulted in 82 subscribers in 1985 and 72 (as of July) in 1986, at a subscription cost of $25. A separate bank account has been maintained in the U.S. to save costs on the transfer of funds with the Switzerland account; during the past four years the U.S. account has earned $248.40 in interest and has a current balance of $1,292.53.

6. Notices of upcoming meetings: Biometeorology in the U.S. in 1987; International Palynological Conference in Australia in 1988; Gordon Research Conference in Aerobiology in the U.S. in 1987.

7. A list of continuing and new Council Members was read to the General Assembly by President Lewis for approval. In addition, Wachter (W. Germany) was proposed by Dr. Leuschner.

Agashe (India)
Allitt (UK)
S. T. Andersen (Denmark, Nordic Aerobiol. Soc.)
Azuma (Japan)
*Brum Negreiros (Brazil)
Chang King-tang (People's Republic of China)
Chanda (India, Indian Aerobiol. Soc.)

*Chen (Republic of China)
Coetzee (South Africa)
*Crompton (Canada)
Donaldson (UK)
Edmonds (USA)
G. El-Ghazaly (Qatar)
Franklin (UK)
Frinking (Netherlands)
Gale (Australia)
Hall (USA)
Kapyla Markku (Finland, Nordic Aerobio. Soc.)
Labouriau (Venezuela)
Leuschner (Switzerland)
Lewis (USA)
Macher (USA)
Nilsson (Sweden)
Ramfjord (Norway, Nordic Aerobiol. Soc.)
A. B. Singh (India, Indian Aerobiol. Soc.)
*Tsukada (USA)
Volaric-Mrsic (Yugoslavia)
Wachter (West Germany)
Yankova (Bulgaria)

*These individuals have yet to be contacted.

The entire list of Council Members was approved unanimously by the Assembly.

8. Proposed members of the Executive Committee as submitted by the Council:

President	Dr. Sunirmal Chanda (India)
Past President	Dr. Walter H. Lewis (USA)
Vice President	Dr. Stephen A. Hall (USA)
Secretary-General	Dr. Frits Th. M. Spieksma (Netherlands)
Treasurer	Dr. Ruth M. Leuschner (Switzerland)

Members At Large
Dr. U. Allitt (UK)
Dr. A. I. Donaldson (UK)

Ex Officio Members (new category)
Dr. S. Nilsson (Sweden)
Newsletter Editor, Dr. Estelle Levetin (USA)

The entire slate of Executive Committee members was approved by the Assembly by unanimous vote.

9. IAA financial records will be audited by Dr. H. Frinking and a second individual to be appointed by the Treasurer.

10. The International Aerobiology Newsletter will be issued twice a year, in May and October. The Newsletter will be

guided by a Newsletter Subcommittee of a newly proposed Publication Committee (introduced later). The Publication Committee will also advise Dr. Lewis, IAA editor to Grana. Thus far, IAA's association with Grana has resulted in a 30% increase in page numbers and greater inclusion of aerobiology papers.

11. The IAA is associated with the IUBS Commission of Aerobiology. IAA's Vice President becomes the President and IAA President becomes the Secretary of the Commission on Aerobiology. The Secretary-General is to inform the IUBS of the new officers. When an IUBS meeting is called, a council member may be asked to attend and represent the Commission on Aerobiology if the President or Secretary cannot attend.

12. At present the IAA is affiliated with the Nordic and Indian aerobiology societies and with the Phytopathology Association.

The International Federation of Palynological Societies has asked if the IAA wishes to join their group. Affiliation with the IFPS would cost $1.00 per member per year. After much discussion, it was decided to defer a decision pending a survey of the entire IAA membership.

13. IAA annual dues are currently Sfr18. Due to possible rising costs of postage which could strain IAA annual budget, it is proposed that the Executive Committee be allowed to raise dues up until January 1, 1988. The increase in dues can raise annual dues from Sfr 18 to no more than Sfr22. After discussion, the above was approved. (If no action is taken by the Executive Committee by January 1, 1988, annual dues remains fixed at Sfr18.)

14. Professor J. Hirst was proposed and unanimously approved as an Honorary Member of the IAA.

15. Five Working Groups, four of them new, were proposed for consideration by the Assembly.

Teaching Group (continuing)
H. Morrow-Brown, Chairman
Indoor Aerobiology
S. Gravesen, Chairman
Tropical Aerobiology
W. Lewis, Chairman
Aerobiological Methodology
E. Henningson, Chairman
Standardized Reporting of Allergenic Hazards
S. Nilsson, Chairman

The goal of these working groups would be to stimulate activity in these areas and to put together syntheses that would be suitable for publication in the form of booklets in time for the next International Conference on Aerobiology.

The Working Groups were approved by the Assembly.

16. Four new committees were proposed for consideration by the Assembly.

a. Nomination Committee (3 members; responsible for nominating individuals to Executive Committee, Council, and as Honorary Members)
Spieksma (Chairman), Vinay, Chanda
b. Publication Committee (responsible for Newsletter and publications of Working Groups)
Nilsson (Chairman), Allitt, Franklin, Hall, Levetin, Lewis
Newsletter Subcommittee
Levetin, Chairman
c. Membership Committee (responsible for membership drives)
O'Rourke, Chairman
d. Awards Committee (3 members; responsible for organizing and funding awards for best student presentations)
Gravesen (Chairman), Frankland, Nilsson

The new Committees were approved by the Assembly.

17. There are no revisions or additions to the Statutes or Rules of Procedure.

18. Proposals for the Fourth International Conference on Aerobiology in 1990 were considered from Nilsson to be held in Sweden, from Agashe to be held in India, and a proposal to have an all-Asian conference in Hong Kong. The General Assembly accepted Sweden. The Fourth International Conference on Aerobiology will be held in Stockholm, Sweden, in 1990.

No additional new business was introduced.

The General Assembly was adjourned.

Respectfully Submitted,

Stephen A. Hall
Secretary-General, 1982-86

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AWARDS

At the conference banquet in Basel, Switzerland, Dr. Walter H. Lewis, President of the IAA, acknowledged the contributions to aerobiology by two members. He presented an engraved plaque with gavel to Dr. Siwert Nilsson for his long term service as President of the International Association for Aerobiology and presented an engraved pen and clock desk set to Dr. Ruth Leuschner for her tireless and flawless efforts as hostess of the 3rd International Conference on Aerobiology.

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EDITORIAL

Although I introduced myself to IAA members in my February letter, this is really my inaugural issue as editor. After gathering materials for the newsletter over the past few months, I realize how hard former editors have worked and want to express my appreciation to them. I especially want to thank Dr. Allen Gale for his diligent efforts and for forwarding various newsletter items to me. He has made the transition a lot easier. I also want to thank all those members who have sent in items and suggestions for the newsletter.

To all aerobiologists: Remember to send in news items, letters to the editor, meeting announcements, notes on new publications or new research underway. Without your help this newsletter could not exist.

Estelle Levetin
Tulsa, Oklahoma

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Grana Subscriptions

Individual subscriptions to Grana, an international journal of palynology and aerobiology, are available to members of the IAA for U.S. $25.00, a considerable savings over the regular subscription price. IAA members can now subscribe directly through Almqvist & Wiksell Periodical Co., P.O. Box 45150, S-10430 Stockholm, Sweden. Indicate in your Grana subscription letter that you are a dues-paying member of the IAA and qualify for the U.S. $25.00 rate. If it is more convenient, members can subscribe through Dr. Stephen A. Hall, Department of Geography, University of Texas, Austin, Texas 78712 USA.

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Report from IAA Working Group

Committee on Indoor Air Pollution

At the Basel meeting a committee was formed of persons interested in studying indoor air pollution and aerobiology. The research activities of the committee members cover primarily exposures to allergenic particles indoors, and the spread of infectious diseases indoors by air. Other indoor air pollutants in homes, office buildings, and schools that impact on the occupants' well-being are chemicals from new furnishings, construction materials, cleaning products, pesticides, combustion by-products, passive tobacco smoke, radon gas, and asbestos.

The committee is planning to compile a bibliography of relevant journal articles and books, and to write a summary of aerobiological research activities in the field of indoor air pollution for the next international meeting of the IAA. This review will include a procedural guideline for investigating buildings suspected of being biologically contaminated, with recommended sampling methods, and survey questionnaires.

Various other organizations, for example, microbiology, air pollution and medical associations, have meetings and committees on indoor air quality. IAA members who are active in these other organizations can represent the interests of aerobiologists and serve as liaisons between these groups and the IAA. Announcements will be made in this newsletter of upcoming meetings on indoor air quality in which aerobiologists might be interested.

If you have references for the bibliography, meeting announcements, or other information to contribute, please send them to the committee chairwoman, Suzanne Gravesen, Allergologisk Laboratory, Environmental Dept., Ved Amagerbanen 23, 2300 Copenhagen, Denmark.

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Remember to send new items to
Newsletter Editor, Estelle Levetin

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UPCOMING MEETINGS

Gordon Conference

This summer one of the Gordon Research Conferences will be on aerobiology; it will be held at Colby-Sawyer College in New Hampshire (USA) from August 10-14, 1987. Stephen A. Hall is chairman of the conference and Ted B. Martonen, vice chairman. Full details of the Gordon Conferences can be found in the March 6, 1987 issue of Science. Scheduled presentations for the Aerobiology Conference are listed below, and an application form is reproduced on the following page. Individuals interested in attending the Conference should send their applications (in duplicate) to the office of the Director. Submit the application as soon as possible in order that it may be given prompt consideration by the review committee. Deadline for the receipt of the application is June 26, 1987.

August 10, 1987

H. Burge, discussion leader
M. Chatigny, "Optimal use of traditional samplers."
D. White, "GC mass spectroscopy analysis of microbial populations".
K. Donham, "Total microbial counts by filtration and fluorescence staining."

H. Burge, discussion leader
J. Feeley, "Experimental design in building related epidemic studies."
W.R. Solomon, "Optimizing design to enable health assessment."

August 11, 1987

C. Upper, discussion leader
C. Upper, "Potential impact on cloud processes by large-scale removal of ice nucleating bacteria."
R. Schnell, "Potential activity of ice nucleating bacteria on precipitation formation."
S. Hirano, "Population ecology of ice nucleating bacteria."

G.L. Batchelder, discussion leader
J.E. Farnham, "Pollen and mold seasons in New England."
G.L. Batchelder, "Pre-season predictions of pollen production in the United States by ragweed and four spring-blooming tree genera."

August 12, 1987

M.J. Utell, discussion leader
R.O. McClellan, "Assessing the risks of airborne pollutants."
C.P. Yu, "Models of particle deposition, retention, and clearance in airways."
P.A. Valberg,"Techniques for assessing deposition and fate of aerosols in the lung."

GORDON RESEARCH CONFERENCES

"FRONTIERS OF SCIENCE"

APPLICATION

Please complete this application and mail **(in duplicate)** to the Director.

PLEASE NOTE

Deadline for Receipt of Application is Six Weeks Prior to the Conference

Conference on _____ Date: _____
(Name of Conference — Please Print)

Name: (Please Print) _____
Organization: _____
Business Address: _____
(inc. dept., street & no.) _____
City and State _____ Zip Code _____

Conference Location: _____

Accommodations (Room & Meals) For:
Applicant _____
Spouse _____
Child(ren) _____
Total _____

IMPORTANT

Please check if you have applied to another 1987 Summer Conference _____

PROFESSIONAL ACTIVITIES:

What type of position do you have? Graduate Student _____ Post-Doctoral _____ Research Scientist _____ University Professor _____ Research Director _____ Program Manager _____

Are you personally involved in research activities in subject area of Conference? _____Yes _____No

How many papers have you published during the past 3 years in the subject area of the Conference?

Indicate your particular activities which justify favorable consideration of you as a participant in and contributor to this Conference. (Not required of speakers.) Applications are referred to the Conference Committee for review in accordance with the established regulations, and this information is essential.

FIXED CONFERENCE FEES — Summer, 1987 — New Hampshire & Rhode Island

*FIXED FEES (New Hampshire Sites)		*FIXED FEES (Rhode Island Site**)	
Conferee (double occupancy)	$310.00	Conferee (double occupancy with bath)	$325.00
Non-resident Conferee (meals, no room)	$270.00	Non-resident Conferee (meals, no room)	$270.00
Guest (room, meals)	$220.00	Guest (room with bath, meals)	$235.00

*Children must be at least 12 years of age to have accommodations (room and meals) at conference host site.
**All rooms at the Rhode Island site are double with bath.

1. Full fixed fee charged regardless of time conferee attends Conference. Please note fees.
2. *Fixed fee cannot be prorated or reduced for anyone (speakers, discussion leaders, conferees).
3. Non-resident conferees are expected to eat all meals in the Conference Dining Room and, therefore, the Fixed Fee for non-residents includes the full meal charge.
4. Refunds — See General Information under cancellations.

PAYMENT:
The full fixed fee will be required IN ADVANCE of *ALL* PARTICIPANTS AND GUESTS. Attendance and/or accommodations will NOT be reserved unless this fee is paid 3 weeks prior to the Conference. (Foreign participants will also be required to pay Gordon Research Conferences in advance in U.S. dollars payable by wire only to a U.S. bank.) Checks drawn on Canadian banks and foreign banks cannot be accepted and will be returned. Scientists in Canada must use a bank draft obtained from their bank payable in U.S. dollars and drawn on a U.S. bank. Detailed information on payment, travel, etc. mailed with registration material.

Please return to:
Dr. Alexander M. Cruickshank
Gordon Research Conferences
Gordon Research Center
University of Rhode Island
Kingston, Rhode Island 02881-0801
Tel.: (401) 783-4011 or (401) 783-3372

Office — Summer Schedule
Colby-Sawyer College
New London, NH 03257
Tel.: (603) 526-2870

Signature _____

Date _____ Telephone: Business _____ Home _____

RECEIPT OF THIS APPLICATION WILL BE ACKNOWLEDGED — PLEASE DO *NOT* SEND PAYMENT WITH THIS APPLICATION

M.J. Utell, discussion leader
R.B. Schlesinger, "Effects of inhaled particles on pulmonary cellular defense mechanisms."
M.J. Utell, "Assessing the response of airways to inhaled pollutants: Controlled clinical studies."

August 13, 1987

V. Knight, discussion leader
T. Martonen, "Behavior of small particulates in the human respiratory tract: Effects of aerosol hygroscopicity and subject age."
M.T. Newhouse, "Role of aerosols in etiology and management of asthma."
V. Knight, "Antiviral therapy with small particle aerosol."

V. Knight, discussion leader
M.B. Dolovich, "Aerosols in the diagnosis of pulmonary disorders."
B.E. Gilbert, "Pharmacokinetics of antiviral drugs administered in small particle aerosols."

August 14, 1987

J.O. Falkingham, III, discussion leader
R.H. Pierce, "Toxin aerosols of red tide."
J.O. Falkingham, III, "Aerosolization of mycobacteria from fresh waters."
J.M. Macher, "Microbiological changes in the indoor environment of an apartment building during the first year of occupancy."

11th International Congress of Biometeorology
8th Conference on Biometeorology and Aerobiology

The International Society of Biometeorology in conjunction with the American Meteorological Society announce the **8th Conference of Biometeorology and Aerobiology**, the 18th Conference of Agricultural and Forest Meteorology and the **11th International Congress of Biometeorology** will be held concurrently **September 13-18, 1987**. The meetings will be held at Purdue University in West Lafayette, Indiana, USA. Joint symposia are planned for all three groups and there are plans for post-conference trips to the Chicago area on September 19 in conjunction with the ISB Congress.

All persons wishing to participate in the ISB Congress should contact the General Program Chairperson, Prof. James E. Newman at the Dept of Agronomy, Purdue University, West Lafayette, Indiana 47907, USA, Tel. (317) 494-8100. All titles and abstracts for the ISB Congress must be received by June 15, 1987 to be included in the 11th Congress preprint volume.

Registration Form

1802-O

Please register me for the following (check all appropriate boxes):
Please duplicate this form for each additional participant. Registration deadline is July 31, 1987.

☐ ISB 11th International Congress of Biometeorology
☐ AMS 18th National Conference on Agriculture and Forest Meteorology
☐ AMS 8th National Conference on Biometeorology and Aerobiology

Name and title _____

Address (office or business) _____

Address (residence) _____

Title of paper _____

Title of poster _____

Field Trips (please indicate the number of people and total fees for each tour you or your spouse plan to participate in):

_____	ISB 3-Hour Tour of North America Wildlife Park at $5	$ _____
_____	ISB All-Day Tour of Indianapolis I.U. Medical Center at $25	$ _____
_____	ISB All-Day Tour of U.S. Corn Belt Farms at $20	$ _____
_____	AMS Half-Day Tour of Campus Research Facilities	Free
_____	ISB Post-Congress Trip to Chicago at $100	$ _____

Please indicate where you have made housing reservations _____

Arrival: ☐ plane ☐ car ☐ other _____

If arriving by plane, please indicate flight number _____ and arrival destination: ☐ Chicago ☐ Indianapolis ☐ West Lafayette

Major Area of Interest in Biometeorology (please check appropriate box):

☐ Human medicine ☐ Health services ☐ Agriculture, Animal ☐ Crop ☐ Forest
☐ Pest control ☐ Modeling ☐ Aerobiology ☐ Ecological ☐ Architectural

Registration Fees: ISB or AMS Member--$150 Spouse--$50 Non-Member--$175 Spouse--$75 Late registration (after July 31, 1987)--$200

Enclosed is $_____ to cover _____ participants fees at (circle one) $150 or $175 or $200 and _____ spouse fees at (circle one) $50 or $75 and _____ tour fees indicated above. Please staple Registration Forms together when paying for several people with one check.

Signature _____ Date _____

Registration fees payments should be drawn from U.S. Banks in U.S. dollars and made payable to Purdue University. Send to:

Continuing Education Business Office
Room 110, Stewart Center
Purdue University
West Lafayette, Indiana 47907 USA

The 8th Congress on Biometeorology and Aerobiology will include sessions covering aerobiology (encompassing modeling, microbiological, phytopathological, palynological, chemical spray, meteorological, pollutant deposition and medical aspects), environmental physiology, physiological ecology, effects of pollutants on plants and animals, human and urban biometeorology, and meteorological influences on human history.

A registration form for the meetings is reproduced on the previous page. For information concerning accommodations contact Mr. M.E. Ocker at the Congress Office, Stewart Center, Purdue Univ., W. Lafayette, IN 47907, USA, Tel. (317)494-7223.

Other Meetings

IV Symposium sobre Biologia de la Contaminacion, August 3-7, 1987, Universidad Pedagogica, Mexico.

6th Congress of the European Society of Pneumonology (SEP) Aug 31-Sept 5, 1987, Amsterdam, The Netherlands. For information write to: P.O. Box 7161,NL 1007, MC Amsterdam or J. Stam, AZVU, Dept of Pulmonary Diseases, De Boelelaan 1117, 1081 HV Amsterdam, The Netherlands.

Annual Meeting - European AC. Allergol. Clin. Immunol., June 20 - 22, 1988, Copenhagen, Denmark. For information write to: P.O. Box 2205, DK-1018 Copenhagen K, Denmark.

7th International Palynological Conference, August 29-Sept 2, 1988, Brisbane, Australia. For information write to: P.O. Box 489, GPO Sydney NSW 2001, Australia.

7th International Congress on Aerosols in Medicine, September, 1988, Rochester, New York, USA.(See page 32 for information).

13th International Congress Allergology and Clinical Immunology, October 16-21, 1988, Montreux, Switzerland.

8th World Clean Air Congress (IUAPPA), September 11-15, 1989, The Hague, The Netherlands. For information write to: P.O. Box 186, NL-2600 AD, Delft, The Netherlands.

4th International Conference on Aerobiology, Stockholm, Sweden, 1990.

NEWS FROM IAA MEMBERS

Research News

NEW OR ONGOING RESEARCH PROJECTS BY IAA MEMBERS

George L. Batchelder - methods of best presenting pollen and spore counts via television, radio, and news print to the public. Both total counts and taxonomic diversity from 30 U.S. sampling stations, over a 15 year period, are being compared. Comments or requests for information are welcome.

Peter Cundill - collection of samples each month from three pollen traps located in a woodland glade at Morton Lochs, Fife. This research was started in 1980 in order to examine: a)the reliability of a new design of pollen trap and b)the relationship between pollen results and vegetation in the area. The project will be continued and extended because some of the trees will be removed from the site in 1987.

Franco Di-Giovanni-application of physical atmospheric dispersion models to bee-pollen deposition in forests, aimed at vegetation reconstruction from Quaternary pollen data.

David W. Hide - 1.ongoing study of trigger factors in asthma. 2.continuous monitoring of mold spores by David Mackett.

Estelle Levetin - 1.new study of airborne basidiospores in Tulsa funded by NIH. This research involves both atmospheric sampling for basidiospores and field studies to determine the most abundant basidiomycetes in the Tulsa area. 2.continued sampling for other aeroallergens.

H.F. Linskens - "air conditioning disease."

Irma Rosas - 1.variation of airborne algae with altitude and weather conditions in Mexico. 2.natural atmospheric microbial flora from four localities in Mexico. 3.monograph of airborne algae collected in Mexico.

Recent Publications by IAA Members

Allit, U. 1985. Airborne conidia of *Belemnospora*. Trans. Br. Mycol. Soc. 85: 524-525.

Allit, U. 1986. Identity of airborne hyaline one-septate ascospores and their relation to inhalant allergy. Trans. Br. Mycol. Soc. 87: 147-154.

Cundill, P.R. 1985. The use of mosses in modern pollen studies at Morton Lochs, Fife. Trans. Bot. Soc. Edinburgh. 44: 375-383.

Cundill, P.R. 1986. A new design of pollen trap for modern pollen studies. J. of Biogeography. 13: 83-98.

Findeisen, D.G.R. 1987. Passivrauchen - Hauptursade heute hoher Asthmamorbiditat, Arzt u. Auto 4: 19-22.

Levetin, E. and P. Buck. 1986. Evidence of Mountain Cedar Pollen in Tulsa. Annals of Allergy. 56: 295-299.

Rosas, I. 1986. Airborne fungi isolated from rain water collected in Mexico City. Contam. Ambient. 2:13-23.
Rosas, I. 1987. Abundance and heterogeneity of algae in the Mexico City atmosphere. Geof. Int. 26.
Spieksma, F.Th.M.,Assem,A.van den & Collette,B.J.A. 1985. Airborne pollen concentration in Leiden, The Netherlands, 1977-1981. II Poaceae (grasses), variations and relation to hay fever. Grana 24:99-108.
Spieksma, F.Th.M.1986. Airborne pollen concentrations in Leiden, The Netherlands, 1977-1981. III. Herbs and weeds flowering in the summer. Grana 25:47-54, 1986.
Spieksma, F.Th.M. and J.F.den Tonkelaar.1986. Four-hourly fluctuations in grass-pollen concentrations in relation to wet versus dry weather, and to short versus long over-land advection. Int. J. Biometeor. 30: 351-358.
Odei, H.D., F.Th.M. Spieksma and P.L.B. Bruynzeel. 1986. Birch pollen asthma in the Netherlands. Allergy 41:435-441.

New Books by IAA Members

Boehm, G. and R.M.Leuschner, Ed. 1986. Progress in Aerobiology - Proceedings of the 3rd International Conference on Aerobiology.
Fischer, G. 1986. Asthma und Heufieber - Ratgeber, Stuttgart/New York.
Fischer, G. 1987. Asthmabronchiale, 4 Ed, Jena U. Stuttgart/ New York.

Changes in Affiliations

THE FOLLOWING INDIVIDUALS HAVE RECENTLY CHANGED AFFILIATIONS AND CAN NOW BE REACHED AT THE ADDRESSES BELOW

Dr. William S. Benninghoff - Dept of Biology, University of Michigan, Ann Arbor, Michigan 48109-1048.
H.F.Linskens - Institute of Experimental Allergology, Monchengladbach, FRG.
Dr. Annie G. Peeters - Allergiestation U S Z, Halden bachstr 22, CH-8091 Zurich, Switzerland.

Other News

Several members reported the publication of The Aerobiological Pathway of Microorganisms by C.S. Cox. 1987.John Wiley & Sons. New York, Chichester, Brisbane, Toronto, Singapore.

A.W. Frankland writes that he has recently been travelling in the Middle East. He was interested to see a Burkard Trap standing on the roof of the Allergy Hospital in Kuwait where investigations on the mycological content of the indoor as well as the outdoor atmosphere are also being conducted. Fifteen years ago, because of marked seasonal inhalant problems present in Kuwait,

Frankland and R. Davies were involved in setting up a Hirst trap to investigate the atmospheric aerobiology in order to rationalize the seasonal rhinitis and asthma. Bermuda grass pollen causes problems all year round with the peak early in the year. *Prosopis* (mesquite) causes symptoms in early spring and in the very late summer. There is also an abundance of *Chenopodium* pollen causing allergic rhinitis. Frankland further writes that there are excellent hospitals looking after allergic patients in Abu Dhabi and Dubai and, particularly, in Kuwait where there is a special hospital dealing entirely with allergic problems with in-patient and out-patient facilities and many research laboratories. The respiratory function, immunological and aerobiological laboratories have all, fairly recently, started excellent work. Frankland recommends that more scientists visit this part of the world to see the research they are doing to help their environmental problems.

J. Lacey reports that the Aerosol Society held its first conference - AGM at Loughborough University of Technology on Mar. 31 and Apr 1, 1987. The conference included the following sessions: the generation and measurement of aerosols; theory and fundamental aspects of aerosols; industrial and nuclear applications; medical and biological aspects; and agricultural aspects. Membership secretary is Dr. J.P.Mitchell, Building A 50/01, AEE Winfrith, Dorchester, Dorset DT2 8DH, UK.

Ruth Leuschner reports on the founding of the European Association for Climatotherapy on Feb. 20, 1987 in Briancon, France. Prof. Razzouk from Briancon is President, J. Lecheier, secretary and Ruth Leuschner is one of the vice presidents.

H.F. Linskens is currently visiting professor at Cath. University, Cordoba, Argentina from March to June, 1987.

Irma Rosas was elected to the Mexican National Research Roster.

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Quaternary Palynology Program at Texas - A new palynology complex is in operation at the Department of Geography, University of Texas at Austin. The laboratory includes a separate student work room, darkroom, and acid room with new fume hood, and is the focus of ongoing research in Quaternary palynology.

Current projects include pollen analysis of several archeological sites, a Plio-Pleistocene lake deposit, a Holocene cave pollen record, and a study of Tauber trap pollen influx replication.

The palynology specialty is part of the departmental program in biogeography, geomorphology, and physical geography. Two graduate courses in pollen analysis and laboratory methods are presented each year. Geography cooperates with other academic disciplines in cross-listed seminars in Geoarcheology and Quaternary Paleoecology. Students enrolled in the Quaternary palynology courses are from botany, anthropology, geological sciences, and geography. The Department of Geography offers B.A., M.A., and Ph.D. degrees.

Inquiries about the palynology program should be addressed to **Stephen A. Hall**, Department of Geography, University of Texas at Austin, Austin, Texas 78712 USA.

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A study by the National Academy of Sciences recommends that unventilated aircraft with a capacity passenger load should not be allowed to remain on the ground for more than half an hour. This finding was the result of an investigation into an outbreak of flu on an aircraft which sat on a runway for four hours. Air quality and circulation are poor on planes while they are not in the air. Providing proper ventilation on grounded aircraft means greater fuel consumption. While providing a minimum of ventilation can help cut airline costs, it also could provide the ideal situation for transfer of bacteria and viruses inside passenger craft. "Most at risk are people with immune systems that are compromised, such as AIDS sufferers and people undergoing chemotherapy and radiation therapy," states **Dr. Harriet Burge** aerobiologist and allergy research scientist from the University of Michigan.[1]

The study also recommends that smoking be banned on all aircraft. It was found that the quality of air in smoking sections of planes did not meet standards set for air quality on the ground. Smoke residue was also the major source of dirt build-up on aircraft, leading to increased maintenance costs.

[1]Ann Arbor News, Sept. 10, 1986 p A 3.

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Addresses for members listed above can be found in IAA directory - Newsletter No. 23, January 1986.

RESEARCH REPORTS

A REPORT ON AEROBIOLOGICAL RESEARCH FROM THE DIVISION OF PALYNOLOGY AND ENVIRONMENTAL BIOLOGY, BOSE INSTITUTE, CALCUTTA, INDIA

The first report of systematic aerobiologial work in India came in 1873 by Cunningham pertaining to the atmosphere of Calcutta, then the capital of India, in view of its increasing urbanization. Cunningham visualized the importance of such an investigation because he understood the impact of airborne particles, both organic and inorganic as a source of danger to human health. The importance of the work was recognized again 100 years later. Calcutta, meanwhile, increased in size and population reaching a stage of total saturation. As a result, it was necessary to investigate the danger of environmental pollution under a wider perspective.

In India there was no coordinated national program until 1979. Several laboratories and institutions in different parts of the country began working individually along the same lines. The absence of a well integrated system of monitoring airborne biological particles created a serious gap in the safeguards of health and hygiene. In 1980 aerobiologists from different regions of India assembled to attend the "Workshop on Modern Trends in Aerobiology with Particular Reference to Plant Pathology and Medicine" held at the Bose Institute, Calcutta, where the Indian Aerobiological Society (IAS) was formed and began functioning on January 31, 1980.

Over the past 15 years the workers of the Bose Institute have been doing work in the same area as Cunningham, but now are equipped with modern techniques and methods. They have studied the aerobiology of Calcutta and other places in West Bengal, Sikkim and Tripura covering both plains as well as higher altitudes of eastern and northeastern India.

ATMOSPHERIC POLLEN SURVEYS

Systematic aerobiological studies were begun by Chanda and his co-workers (5,6,9,13,14,29). Chanda and Nandi (13) reported the incidence of fungal spores such as *Alternaria*, *Curvularia*, *Helminthosporium*, *Cladosporium*, pollen grains of *Pinus*, spores of *Polypodium*, and diatoms in the air of Calcutta. Occurrence of the pollen grains of *Pinus* was perhaps due to long distance transport. Further, Chanda and Sarkar (14) reported the presence of grass pollen grains (39%) from Greater Calcutta which may have originated from *Eleusine indica*, *Cynodon dactylon*, and *Setaria glauca*. In all 29 pollen types were reported with tree pollen

constituting 34.5% of the total count. Chanda (6) also reported a high frequency of grass pollen, i.e. 32.5%, followed by Arecaceae at 10.2% and Amaranthaceae/ Chenopodiaceae jointly at 15.7% from the atmosphere of Falta, a rural area about 40 km south of Calcutta. Similar results were obtained in Kalyani, a semi-urbanized township about 35 km north of Calcutta (27,28). A total of 32 pollen types were identified with the maximum contribution made by grass pollen (38.9%) followed by weeds (33.6%) and trees (19.0%).

In other parts of West Bengal like Digha (a non-industrial sea coast resort of Midnapore district), Durgapur (a highly industrialized town of Burdwan district), and Jhald (a rocky, semi-urban location with undulating landscape of the Purulia district) the grass pollen grains occurred in highest frequency (3). Identical results were obtained from earlier investigations in other places of West Bengal (10,11,27,28).

Darjeeling and Kurseong, situated in the higher altitude of the Eastern Himalayas of the northern part of West Bengal, are considered to be botanically one of the richest places in India. Kundu et al. (23,25) published a brief account of the temperate flora of a Darjeeling town in order to provide a pollination calendar. A total of 51 types of airborne pollen grains were recorded with *Cryptomeria japonica* the most frequent, (14.13%) followed by Poaceae, *Ageratum* sp., *Polygonum* sp., *Betula* sp.,and *Pinus* sp. Pollen grains of some entomophilous plants such as *Magnolia*, *Mahonia*, *Michelia*, *Prunus*, and *Rhododendron* were also recorded from the air of Darjeeling (20).

Further, an atmospheric pollen survey of Kurseong, a sub-tropical zone, in the Eastern Himalayas, was done by Kundu et al.(24) and Gupta et al.(18). The incidence of tree pollen dominated that of grasses and weeds. The trapped tree pollen originated from *Alnus*, *Betula*, *Engelhardtia*, *Quercus*, *Bucklandia*, *Acer*, *Salix*, *Ilex*, *Cryptomeria*, *Pinus*, and *Cupressus*. Some of these have been proven to be allergenically significant. In this area the seasonal variation of pollen incidence was found to be dependent on seasonal climatic and flowering period change (16).

A pollination calendar of Gangtok, Sikkim of the Eastern Himalayas was prepared by Kundu and Chanda (21). The dominant families, common in Sikkim Himalayas, are Aceraceae, Asteraceae, Betulaceae, Ericaceae, Magnoliaceae and Poaceae. This calendar correlated the flowering period, mode of pollination and pollen characters of the flowering plants growing in Sikkim.

Incidence and frequency of airborne pollen grains were studied by Bhattacharya et al. (3) at Jalpaiguri, a small

town of North Bengal, situated in the foot hills of the Eastern Himalayas. Grass pollen grains were found to dominate and occur year round followed by *Sizygium*, *Cocos*, Urticaceae, and Cheno-Amaranthaceae. *Alnus* and *Pinus* pollen grains were also recorded. Since such trees do not occur in Jalpaiguri, it was presumed that these grains were transported from higher altitudes in the Eastern Himalayas about 100 km away.

A preliminary report was presented on the incidence of atmospheric pollen grains of Krishnapur, Calcutta by Nandi et al. (31). Some of the common aeroallergens were grasses, *Cassia fistula*, *Azadirachta indica*, and *Chenopodium ambrosioides*. Majumder and Chanda (26) reported the occurrence of 55 airborne pollen species in the air of Coochbehar in the northern part of West Bengal. Pollen peaks were clearly correlated with flowering periods and meteorological data. Pteridophytic spores, pollen of *Eucalyptus*, *Cocos*, *Acacia*, *Casuarina*, *Cassia*, *Malvaceae*, *Euphorbiaceae*, and a number of coniferous pollen grains were recorded.

ATMOSPHERIC SURVEY OF FUNGAL SPORES

Reports on the presence of airborne fungal spores were made by a number of workers in India after Cunningham's monumental contribution (15). The occurrence of 178 spore types from 90 genera of fungi was reported by Saha et al. (32). Santra and Chanda (33) investigated various occupational environments of Calcutta where 17 fungal species were isolated and identified. Mycotoxic pathogenic molds such as *Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus terreus*, and *Rhizopus nigricans* occurred in a relatively higher concentration than several phytotoxic molds, e.g. *Cladosporium herbarum*, *Alternaria alternata*, *Alternaria solani*,and *Helminthosporium oryzae*. The concentration in market areas, hospitals, and laboratories was higher than in the dwelling houses. Kundu et al. (23) investigated the air of Darjeeling, where the dominant types were *Alternaria*, *Helminthosporium*, and *Fusarium*. Using a Burkard volumetric spore trap, a number of fungal spores were isolated and identified from the air of Calcutta (30), where *Aspergillus*, followed by *Chaetomium*, *Fusarium*, *Cladosporium*, and *Ganoderma* were recorded. Ratna variety of rice was cultivated during kharif season in the suburbs of Calcutta where disease incidence could be correlated with the incidence of conidia of *Ustilaginoidea virens*. Epidemiological studies showed that the maximum disease occurred when the mean temperature was about 28°C and the relative humidity above 90%. Bacterial composition of air was investigated in Digha, Durgapur and Jhalda where *Aerobacter*, *Bacillus*, *Conybacterium*, *Staphylococcus*, and *Streptococcus* were recorded (32).

BIOCHEMICAL STUDIES

Chanda and Ganguly (8) reported the presence of 15.01% protein in the pollen of *Melia azedarach* and 25.02% protein in *Ipomoea fistulosa*. Chemical analyses of the pollen grains of *Cucurbita maxima*, *Datura metel* and *Azadirachta indica* were done to determine the proteinaceous nature and amino acid composition (8). All three species contained the essential amino acids, of which some were common. Pollen of *Datura metel* contained eight free amino acids where protein, aminocaprylic acid and glutamic acid were important. The pollen of *Cucurbita maxima* contained isoleucine, thiamine, and aspartic acid.

The chemical composition of the pollen grains of *Lantana camara* and *Solanum sisymbrifolium* which were commonly found in the air of Calcutta revealed the presence of carbohydrate, protein, lipid, calcium, and magnesium. In some cases both qualitative and quantitative estimations were done (16), and a comparative study was made on the chemical constituents of allergenic and non-allergenic pollen by Gupta et al. (18). Chemical studies revealed that the allergenic extracts of *Cynodon dactylon* contained at least two active protein fractions of molecular weights 11,000 and 20,500. Purified protein fractions of *Acacia auriculiformis* showed at least three active fractions of molecular weights 19,000, 18,000 and 13,000 when determined by SDS-gel electrophoresis (20). Gupta et al. (19) studied both free and bound amino acid composition of the pollen grains of *Parthenium hysterophorus*. Aminocaprylic acid, proline and histidine were found to occur in both states. The free amino acid pool did not reflect the ratio of amino acids found in pollen protein.

CLINICAL STUDY

In order to determine the allergenicity of airborne pollen, aqueous sterile extracts of 21 pollen types were prepared (28). The clinical tests revealed that *Cucurbita maxima* and *Lantana camera* gave highest degree of positive responses. Other types such as *Cassia fistula*, *Cocos nucifera*, *Eleusine indica* and *Datura metel* also showed "markedly positive reactions" (12).

Kundu et al. (22) performed clinical tests of 16 local pollen types. Of these, *Acacia auriculiformis*, *Azadirachta indica*, *Cocos nucifera*, grass, *Lantana camera*, *Putranjiva roxburghii* and *Trewia nudiflora*, were found to be allergenically significant. Relative insignificant positive results were found in the pollen grains of *Amaranthus spinosus*, *Argemone mexicana*, *Bauhinia* sp., *Bombax ceiba*, *Carica papaya*, *Cassia fistula*, *Clerodendrum infortunatum*, *Solanum surattense* and *Vinca rosea*.

Batabyal et al. (2) observed the manifestation of atopic and non-atopic allergy induced by the pollen of *Chenopodium album* by using PRIST and RAST tests. Of the skin tests performed on 100 allergic patients, 68 of them showed significant positive skin reactions. Total serum IgE was titrated employing PRIST test and specific IgE level was also estimated by RAST test. Batabyal et al. (2) also estimated the total serum IgE in 64 normal non-allergic subjects and 52 allergic individuals. The allergic subjects were examined according to the sensitivity of the patients to grass (*Cynodon dactylon*), weed (*Chenopodium album*) and house dust containing mites (*Dermatophagoides* group). The total mean serum IgE levels were estimated to be 41 $\pm$ 29 Ku/1. This signified that the mean total serum IgE concentration is more or less constant in normal non-allergic individuals. In allergic patients mean total serum IgE was 458 $\pm$ 362 Ku/1. It was observed that patients with asthma and atopic dermatitis had a significant higher mean IgE level than those suffering from asthma and rhinitis with conjunctivitis.

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Plan to attend the 4th International Conference on Aerobiology, 1990. Stockholm, Sweden.

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AEROBIOLOGY IN A TROPICAL CLIMATE IN RELATION TO ALLERGIC DISEASES

D.P. Ponce[1], V. Rull[1], M.L. Salgado-Labouriau[2], F. Alvarez[3], A. Hernandez[3], M. Guariglia[1], Suarez[1].

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A prospective and computerized survey to ascertain the prevalence of allergic diseases in the Venezuelan population at risk has been carried out since early 1981. The results (1,2) indicate that allergic diseases are a major public health problem in Venezuela and may represent a similar problem in other tropical areas of the world. Preliminary results show that 43% of the population bears one or more allergic diseases. A high frequency of positive family history of atopy and a pattern of polisensitization adds more complexity to a national plan to control and prevent these diseases.

A multidisciplinary project is in progress to sample and assess the airborne pollen and fungal spores from the Caracas Valley in order to determine a chronological correlation between their concentrations in the atmosphere and symptoms of sensitive patients living in the area.

The aims of this project are:

1 - the choice of the best location of a station for collecting aerobiological samples in the valley of Caracas, based on the topography, meteorological parameters, and distribution of vegetation in the area. These considerations led to the selection of three sites that were sampled. The station at the campus of the Universidad Central de Venezuela, in the center of the urban area, was chosen as the best site for a preliminary aerobiological study, according to the standard sampling requirement (3).

2 - the trapping and identification of airborne pollen grains and the determination of the most important components throughout the year. A preliminary study during one year using a Rotorod sampler has shown that the main components are the pollen grains of Gramineae and Urticales i.e. *Cecropia*, *Celtis*, *Trema*, etc.(4). The identification of all the pollen types and the location of their source are in progress.

3 - the identification of airborne fungi by air sampling and culture techniques. The preliminary sampling with the Rotorod has shown that fungal remains are more abundant than pollen grains. The prevalent spores are those of *Cladosporium* (4).

4 - the information accumulated will be used for the elaboration of a pollen calendar of the city of Caracas, and an illustrated atlas of the major pollen and spore types.

5. The correlation of the meteorological parameters (such as relative humidity, rainfall, temperature, wind velocity and direction, insolation, and atmospheric stability) with pollen and spore counting, and the influence of atmospheric factors in the dispersion airborne particles.

6. The determination of allergenic pollen and fungal spores by means of in vitro techniques. This part is in progress and the following methods are being used.

a. clinical computerized allergy history of twenty selected asthmatics and allergic rhinitis patients to be followed up on a monthly basis,
b. daily symptoms score and objective record of peak expiratory flow (PEF) as a valuable indicator of lung function,
c. routine laboratory tests (eosinophilia, nasal cytology and search for intestinal parasites),
d. total serum IgE (PRIST) and specific IgE (PRICK and RAST) to selected allergens,
e. immunochemical laboratory techniques to standardize important allergens found locally. This last part is being studied in collaboration with Dr. H. Baer and M.C. Anderson from the Allergenic Products Branch, Bureau of Biologics, Food & Drug Administration (FDA), Bethesda, Maryland, U.S.A.

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BOOK REVIEWS

NORDIC AEROBIOLOGY. S. Nilsson (ed.). Almqvist & Wiksell International, P.O. Box 45150, S-104 30 Stockholm, Sweden.1984. 100pp. SEK 135 (paper).

This small volume contains research papers presented at the 5th Nordic Symposium on Aerobiology held in Abisko, Sweden, August 1983. Articles are divided into four sections: allergology and pathology, microbiology and aerosols, pollen and spores, and meteorology and methodology. They include such papers as hay fever in Sweden, occurrence of microalgae in the atmosphere of Sweden, pollen frequencies in Finland, as well as more generalized articles by Benninghoff (Airborne particles and electrostatic charges) and Frinking (Dissemination mechanisms and dispersal patterns of powdery and downy mildews), to note a few.

The whole has been well organized and edited by Dr. Siwert Nilsson eminent aerobiologist and palynologist of the Swedish Museum of Natural History, Stockholm.[1]

[1]Econ. Bot. 40:441, 1986

Walter H. Lewis
Washington University

AIRBORNE POLLEN, SPORES AND OTHER PLANT MATERIALS OF INDIA; A SURVEY. Report of the All India Coordinated Project on Aerobiology. Edited by P.K.K. Nair, A.P. Joshi and S.V. Gangal. 1986. Published Jointly by the CSIR Centre for Biochemicals and National Botanical Research Institute Lucknow. All Correspondence to the Scientist in Charge, CSIR Centre for Biochemicals, Guru Teg Bahadur Marg, Delhi - 110007, India.

Every human individual takes approximately 22,000 breaths per day! Whilst life can be sustained without food for several days and water for a few days, an absence of air for a few minutes is incompatible with life. But the air we breathe has become a repository for micro-organisms, toxic gases and other organic and inorganic substances. These biopollutants of the air are of special interest to aerobiologists in relation to human allergy and plant diseases. India has been in the forefront in the study of aerobiology and recently the "All India Coordinated Programme" achieved a worthwhile overview of aerobiology. The most significant outcome of this project has been the preparation of pollen calendars and the identification of the various pollen and fungal spores.

India has a wide range of different environments from desert to alpine tundra. Such a diversity in the vegetation results in enormous variation of the quality and quantity of

the aerospora. Since it is estimated that between 10% and 15% of the Indian population suffers a major allergic disorder, including bronchial asthma and allergic rhinitis, the importance of aerobiology will be readily appreciated. This present book is the first survey of its kind in India.

Allen E. Gale, Adelaide

SAMPLING AND IDENTIFYING ALLERGENIC POLLENS AND MOLDS, E. Grant Smith. Blewstone Press, San Antonio, Texas, USA. 1984. 92 pp, $41.50 (paper).
SAMPLING AND IDENTIFYING ALLERGENIC POLLENS AND MOLDS, VOLUME II, E. Grant Smith. Blewstone Press, San Antonio, Texas, USA. 1986. 98pp, $62.50 (paper).

The author describes the first volume of this set as a *Manual for Allergists and Lab Technicians* and the second as *An Identification Manual for Air Samplers*, an excellent and accurate summary of the work. In each volume the author outlines techniques to be followed in the identification of atmospheric pollen and mold spores and provides advice on many of the common problems encountered while sampling airborne particulates.

The primary aim of the work is to assist workers in the identification of collected pollen and mold spores which is successfully accomplished through the use of color plates of the specimens just as they appear on the microscope. The first volume contains close to 200 plates with North American pollen being stressed while the second presents pollens of Western Europe, many of which occur in North America, and U.S. weeds, grasses, and trees, but with an emphasis on the molds as evidenced by approximately 300 illustrations of those more commonly encountered. The author is to be commended for his careful selection of the photographs and the quality of the color reproduction. The flexible binding permits the publication to lay flat on the desk and remain open to the selected page during use, a definite plus in a crowded research space.

One familiar with plant systematics will find some of the nomenclature outdated but nonetheless generally accurate. Since the medical community is traditionally slow to receive word of nomenclatural changes, this factor is of minor significance and does not detract from the overall value of the work. Both of these well written, beautifully illustrated books should be part of the reference library in any laboratory involved in the identification of airborne pollen and mold spores.

Paul Buck
The University of Tulsa

The Seventh International Congress on Aerosols in Medicine

September, 1988
Rochester, NY, USA

Scope

Biological Effects,
Diagnostic and Therapeutic Uses,
and Characterization of Aerosols

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