

Proceedings of the First International Congress of Ecology. Structure, Functioning and Management of Ecosystems. The Hague, The Netherlands, September 8–14, 1974. — Pudoc, Wageningen 1974. 414 pp., Dfl. 50.—.

The intense recent development of ecological research has stimulated the International Association for Ecology (INTECOL) to organize this Congress under the auspices of the Division of Environmental Biology of the International Union of Biological Sciences. The Congress brought together botanists, zoologists, microbiologists, limnologists, marine biologists, and scientists in agriculture to discuss various aspects of structure, functioning, and management of ecosystems.

The proceedings of this Congress were published in an extremely short time. The volume contains a mixture of abstracts and full papers, reprinted by photo-offset technique from the original manuscripts, but the varied set up of papers is only exceptionally to the detriment of legibility.

The first part of the volume contains papers dealing mostly with diversity and stability of ecosystems, their dynamics, flows of energy and matter, primary and secondary productivity and their relationships, responses of ecosystems to human activities, management and planning of ecosystems, *etc.*

Second part of the book contains papers presented at five symposia of the International Biological Programme: (1) on freshwater, brackish and marine ecosystems, (2) global geography of biological productivity, (3) evolution of ecosystems, (4) stable and unstable ecosystems with man in different climatic zones, and (5) prediction of ecosystems response to human intervention. The topics of papers of these symposia did not differ much from those enumerated above, but were more often focused on specific ecosystems.

The materials from eight special symposia (evaluation of systems analysis and modelling in ecosystems research; methods of experimentation with ecosystems in the laboratory and in the field; ecological interpretation of remote sensing data; parasitic systems; deforestation consequences; seagrass ecosystems; human ecology; optimization in ecological systems) form the third part of the Proceedings. The closing session was on the significance of ecological principles for the society.

The paper-back volume is rather cheap. It does not contain authors and subject indexes (the only index contains the names of contributors to the volume): this is the price one has to pay for the rapid publication of a book.

Z. ŠESTÁK (*Praha*)

NAHAS, G., SCHAEFER, K. E. (ed.): **Carbon Dioxide and Metabolic Regulations.** — Springer Verlag, New York—Heidelberg—Berlin 1974. 26+372 pp., DM 103.50.

As a part of the XXV International Congress on Physiological Sciences a satellite symposium was held in Monte-Carlo, Monaco. Its 37 participants discussed the primordial role of carbon dioxide in biological regulations. The symposium was dedicated to W. O. Fenn, general physiologist, who was educated plant physiologist (pupil of W. J. V. Osterhout), but who dedicated the majority of his life to human and animal physiology. The symposium took place in July 1971, but the preparation of proceedings volume containing also records of discussions to individual papers took three years. The introductory lecture of W. O. FENN reviews the concentrations and gradients of CO₂ in the sea. Only one of the following 31 papers deals with a plant physiological topic, but nevertheless it is interesting to read the studies on carbon dioxide in animal and human physiology and biochemistry. The papers deal with CO₂ and pH regulation of metabolic processes, cellular and organ functions and CO₂ transport, with adaptation to CO₂, and present mathematical models for CO₂ regulation.

The paper of A. MOYSE from France is on CO₂ and metabolic regulations in plant photosynthesis. This paper shortly reviews (12 pp.) the ultrastructure of chloroplasts, photosynthetic electron transport chain, resistances to CO₂ fluxes in leaves, pathways of CO₂ fixation and their localisation in different tissues, questions of photorespiration and CO₂ evolution during photosynthesis, dependence of photosynthesis on CO₂ concentration, *etc.*

The volume is supplemented with author and subject indexes. It is well edited, the quality of printers' work is good.

Z. ŠESTÁK (*Praha*)

M. ZŮBKOVÁ, Z. SLADKÝ
PLACENTAL POLLINATION IN VITRO

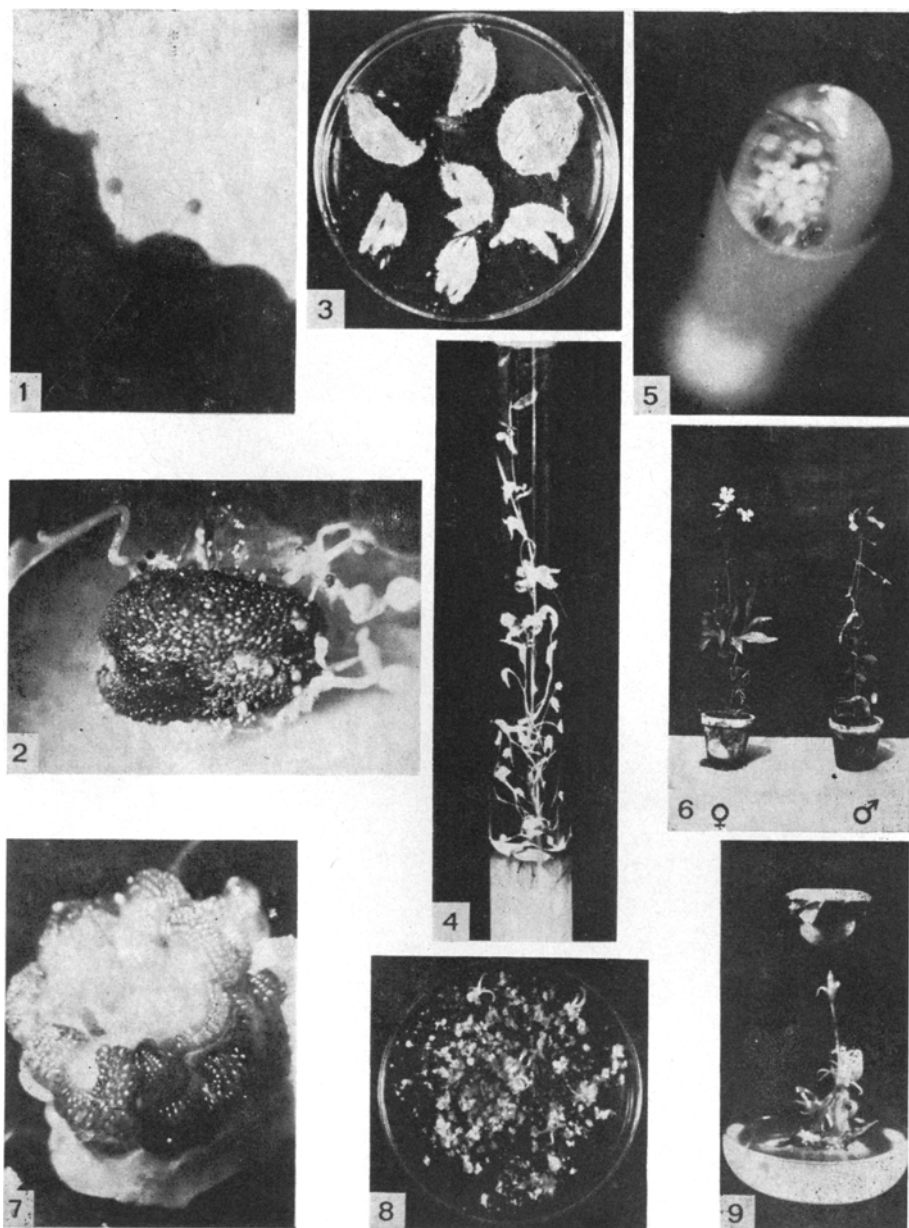


Plate I: Fertilization and the formation of viable seeds *in vitro*.

Fig. 1. The growth of pollen tubes into the ovules of *Agrostemma githago*.

Fig. 2. Maturing seeds of *Nicotiana tabacum* on the placenta and simultaneous growth of young plantlets in the nutrient medium.

Fig. 3. Maturing seeds of *Papaver rhoeas* on the wall placenta.

Fig. 4. Flowering plants of *Papaver rhoeas* after a 2-month cultivation.

Fig. 5. Maturing ovules of *Melandrium album* on the placenta in the test tube.

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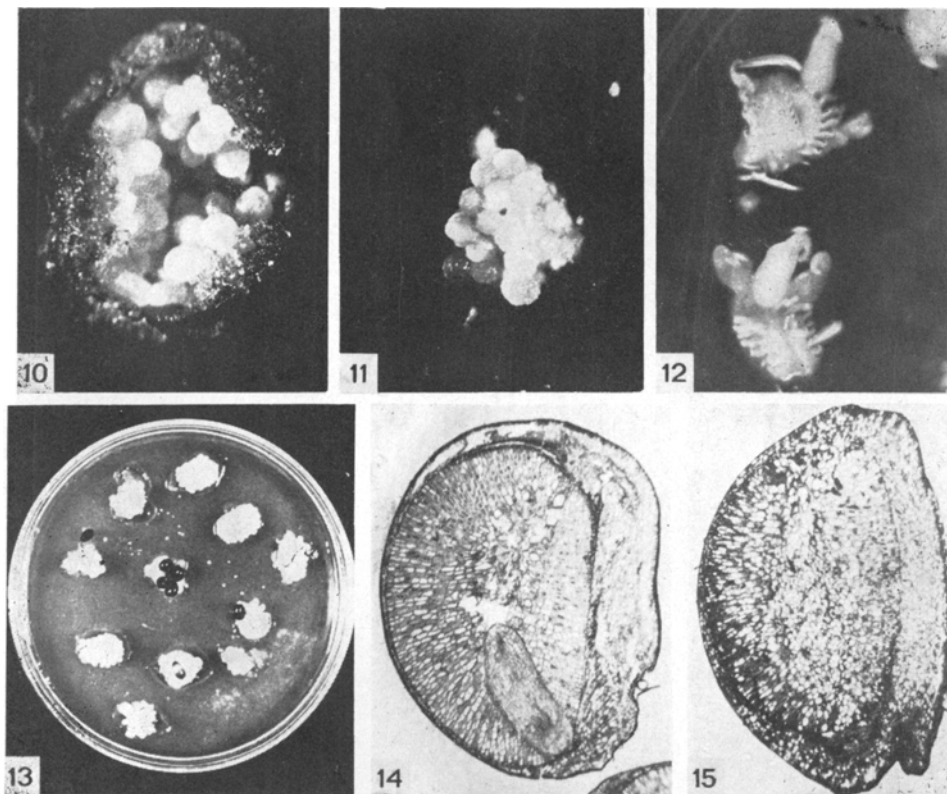


Fig. 6. The ratio of pistillate (♀) and staminate (♂) plants with *Melandrium album* equalled 1 : 3.

Fig. 7. Maturing seeds of *Agrostemma githago* on the basal placenta.

Fig. 8. The growth of embryoids and proliferation of the perisperm of the seeds of *Agrostemma githago*.

Fig. 9. Explants cultivated at a suitable photoperiod give rise to flowering plants.

Plate II: Fertilization and the formation of non-viable seeds *in vitro*.

Fig. 10. Fertilized ovules and maturing seeds of *Viola tricolor maxima* hort.

Fig. 11. Maturing seeds of *Antirrhinum majus* in the medium supplemented with IAA.

Fig. 12. Developing ovules of *Galanthus nivalis* on the placenta.

Fig. 13. Maturing seeds of *Narcissus pseudonarcissus* on the placenta.

Fig. 14. The anatomical structure of a seed of *Narcissus pseudonarcissus*.

Fig. 15. In some seeds the embryo was not developed.

J. POLÁK, J. CHOD
BEET MILD YELLOWING VIRUS



Fig. 3. Leaves of *Sinapis alba* L. with BMV symptoms. Yellowing of tissue between veins on the upper side (right) and violet spots on the lower side of the leaf (left).



Fig. 5. Leaves of sugar-beet cv. 'Dobrovická A' with BMV symptoms 6 weeks after inoculation with aphid *M. persicae* (SULZ.). Chlorotic thickened leaves with yellowing on the tissue between veins (right) and leaf from a healthy plant (left).

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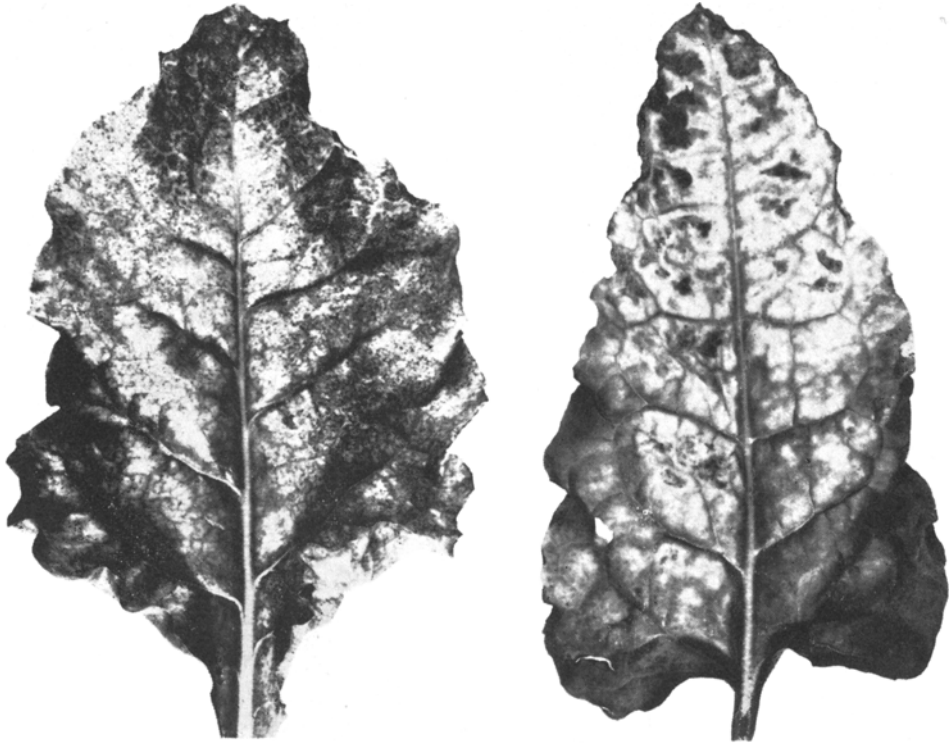


Fig. 6. Leaf of sugar-beet cv. 'Dobrovická A' with BYV symptoms: necrosis of the apical part, spotting and yellowing.

Fig. 7. Leaf of sugar-beet infected with BMYV. The yellowing of the tissue among veins, and necrosis caused by fungus *Alternaria* sp.

BEET MILD YELLOWING VIRUS



1



2



3



4

Fig. 1. Leaf of sugar-beet infected with BMV. The tissue near-by veins remains green while the rest of the leaf become yellow.
 Fig. 2. *Raphanus raphanistrum* leaves with BMV symptoms: Yellowing and thickening of leaves. Wilted leaf of a healthy plant (left).
 Fig. 3. Leaves of *Capsella bursa-pastoris* with BMV symptoms. Yellowing leaves with violet spots (right) and a healthy leaf (left).
 Fig. 4. Leaves of *Claytonia perfoliata* infected with BMV. Yellowing and violetting of the apical part of leaves (right) and a healthy leaf (left).

The thirtieth anniversary of the liberation of Czechoslovakia by the Soviet Army is a turning point in the recent history of the Czechoslovak people; it is also the anniversary of the victory over world fascism. The Soviet Union took decisive part in the defeat of world fascism and we remember with admiration and gratitude the enormous sacrifices suffered by our people, by the people of the Soviet Union and by the other nations in the course of the Second World War.

The victory over fascism meant also the defeat of reactionary science, whose partisans proclaimed racism and misused the results of science against humanity.

In the last thirty years, Czechoslovak Communist Party, the acknowledged leader of the working class and of all the working population, together with the Czechoslovak Government, devoted much care and attention to the creation of a widespread network of scientific and research institutions and to the development of basic research in the Czechoslovak Academy of Sciences.

The Institute of Experimental Botany of the Czechoslovak Academy of Sciences is one of the institutes which were founded after the liberation of Czechoslovakia. Thus conditions were created for progress in basic research of plant physiology, genetics, phytopathology; its aim is the acquisition of theoretical knowledge in these sciences, but also the application of research results in practice, above all in the socialist agricultural large-scale production.

The workers of the Institute of Experimental Botany ČSAV, where this journal is published, could in this way take part in the past — and they will be able to do so yet more in the future — in the revolutionary process of building socialism in agriculture and to contribute to the increase in plant production.

Thus scientific workers, whose results support the progress in agriculture have to consider how their work will be utilized for the increase of plant production; they have to keep in mind also the protection of life environment against the negative effects of intensifying chemization.

The journal Biologia Plantarum, in publishing the contributions of Czechoslovak and foreign scientific workers, will continue to encourage an exchange of information on scientific progress; it also wishes to assist in the utilization of scientific work for the increase of plant production. This undoubtedly will contribute to the improvement of the journal, and will also express the social function of science, which is directed against obscurantism, towards social progress and welfare of humanity.

It is the anniversary of victory over fascism that leads the scientists, conscious of their social responsibility, to see to it that the results of science are not misused against the humanity, but that they are applied for a healthy physical and mental development of mankind, which is possible only in peace.

The Editors of Biologia Plantarum desire to contribute with their modest share to these noble goals.

F. POSPÍŠIL

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Director of the Institute of Experimental
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