

cussions of a great number of designated, comparatively narrow subjects.

If it proved impossible to surmount the hurdle of "no paper, no travel grant," then all papers (other than the reviews) could be submitted in the form of abstracts, which would then be grouped by the program committee into small batches according to subject, and a chairman, place, and hour could be designated at which the authors would be present to answer questions from each other or from any member of the congress. Such abstracts would be printed in advance, with no further public record of this part of the program.

(iii) *Social*. It is urged that most of each day should be frankly and unashamedly social in character, the organizing committee aiming by any ingenious method to give every member a daily chance of meeting any other member informally.

Not all the responsibility for this social activity should be put upon the host country; periods should be left open in which individuals and groups could reserve rooms and services for cocktail parties, receptions, meals, talks, films, and so forth, at a set scale of charges previously circulated by the congress committee. A reasonably full membership list would have to be circulated in advance of the congress, to encourage people to make up parties of those whom they particularly wish to meet.

In addition, these quinquennial congresses would have the administrative responsibilities of election of officers and members of committees of the International Society, financial accounting, and the appointment of study groups for nomenclature and similar problems.

#### Finance

The local costs of any regional conference would probably be modest, since 300 to 500 people can be accommodated in most university departments or colleges, and the administration should not be much more complex than that of the national society concerned.

The vast unlimited congress would be expensive, and there seems no alternative to defraying most of the cost from registration fees, but governments could be canvassed as to the extent of subsidy they might provide, and the congress location fixed accordingly.

At present, every congress and con-

ference is an isolated struggle by the organizers, who must beg desperately, in competition with other disciplines, from all possible sources. To some extent this is inevitable. However, on the basis of six regularly anticipated regional conferences per year for four years and an international congress in the 5th year, it might be possible to persuade associations of industries in various parts of the world, educational and scientific foundations, and even government grant-making agencies, to provide regular annual subscriptions, in the first instance for 5 years, on the condition that at all other times they are left in peace by endocrinologists. If an individual company or institution, on its own initiative, wished to mount a special exhibition or make some exceptional offer on any occasion, this would be most acceptable, but would be dealt with separately.

For regional conferences and international congresses, registration fees must be realistic and should meet the local costs of the meeting.

#### Summary

The experimental establishment by an International Society of a coordinated group of worldwide regional conferences on an annual basis for 4 years, succeeded in the 5th year by a giant congress which is of the nature of a review and which is honestly social, is suggested as an alternative scheme to the present situation, which may be summed up as follows: the rigidity of some national societies, the haphazard expansion of regional meetings, and the cynical extravagance of huge congresses—of which the success is measured only by size, and from which both science and friendship are being squeezed out.

G. E. W. WOLSTENHOLME  
*Ciba Foundation, London*

#### Skin Cancer and Sunlight

The theory that sunlight causes cancer of the skin dates back to the turn of the century. From studies made at that time and subsequently it is clear that these cancers appear predominantly on the face and other exposed areas. In order to discuss various aspects of this problem a conference was held at Airlie House, Warrenton, Virginia, 21–24 March 1964.

It is generally accepted that people

most exposed to sunlight, whether because of occupation or geographical location, are more likely to develop this type of cancer. Negroes, who do not easily sunburn, experience only a small incidence of skin cancer that can be attributed to sunlight. Since 1928, when cancers were first produced with ultraviolet light in laboratory animals, it has been possible to support some of these claims with greater assurance. Experiments have shown that the radiation which causes skin cancer is the same type of radiation that produces sunburn and destructive processes in living organisms in general. The long wavelength limit (about  $0.32 \mu$ ) of these effects corresponds to the long wavelength limit of absorption by proteins and nucleic acids. Radiation of wavelength shorter than this limit (ultraviolet B) constitutes only a very small fraction of sunlight. This ultraviolet B radiation varies greatly with latitude, season, and time of day, is difficult to measure, and cannot be gauged by the eye. Experiments with animals have resulted in additional information on the mechanism of carcinogenesis and have shown, among other things, the cumulative nature of carcinogenesis. Cancers are producible only by many repeated doses of ultraviolet light. Although the evidence confirms certain facts, numerous points of uncertainty still remain.

Consideration of biophysical aspects included difficulties in determining precisely the action spectrum of carcinogenesis; the relationship to the erythral spectrum (sunburn) and the use of this spectrum as an approximation; penetration of ultraviolet light into the skin and the relative protection provided by corneum and by melanin pigment; and direct and indirect pigmentation, their action spectra, and mechanisms. In discussing pigmentation, attention was called to a population of albino Bantu, who offer a possibility to investigate effects of sunlight on Negroes without pigmentation. However, this population may not be accessible for study too much longer.

With regard to measurements of sunlight, extensive studies of the spectral character and distribution of the ultraviolet portion were reported with parallel observations of erythema and ultraviolet B. The importance of ultraviolet B scattered from the sky and differences between variation with time of day, season, and latitude for this

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radiation and for total sunlight were stressed. Problems of measuring ultraviolet B in large-scale field studies and a description of a new method for such measurements were noted. The importance of being able to compare measurements in order to assess the carcinogenic role of sunlight at different parts of the earth was emphasized. Also noted was the need for standardization of light measurements in both laboratory and field.

In pathology, the problem of classification of skin tumors and their topographical distribution exists. Parallels between distribution of these lesions on the face and incidence of ultraviolet B were shown; the important part played by scattering was demonstrated. In the course of discussion of the association of skin cancer and keratosis, the idea developed that it might be advisable to include both in a syndrome of pathological effects of ultraviolet B. The possibility of systematic histopathologic studies of changes in the skin with age—comparing exposed and covered parts—was discussed.

Epidemiological discussions included reports on the distribution of skin cancer in the Transvaal, England, and Queensland, where there is high incidence of the disease. Concurrent measurements of the ultraviolet of sunlight are being made in these areas; these investigations constitute the only close coordination of measurements of sunlight and of cancer incidence. Difficulties in epidemiological study of a disease that depends upon cumulation of effect over a long period of time were stressed; continued residence in the same area, and proper reporting by the patient are factors of critical importance.

Perhaps the most important outcome of the conference was the general recognition of the many uncertainties and problems involved. Each member learned something of others' difficulties with the particular kind of measurements he is trying to make. There seemed complete agreement that the ultraviolet B of sunlight is an important factor in human skin cancer; uncertainties center on the relative importance of this factor in regard to geographical distribution and the extent to which other factors may enter.

The variety of backgrounds of the participants, which made possible interchange of ideas on various aspects of the problem, is indicated in the following list: H. F. Blum (physiology, National Cancer Institute), F. Daniels, Jr.

(dermatology, Cornell University Medical College), G. H. Findlay (dermatology, University of Pretoria), R. Latarjet (director, Institut de Radium, Paris), R. E. Johnson (radiobiology, National Cancer Institute), A. Lilienfeld (School of Hygiene and Public Health, Johns Hopkins), I. A. Magnus (St. John's Hospital for Diseases of the Skin, London), D. F. Robertson (Department of Physics, University of Queensland), R. Schulze (Deutsche Wetterdienst, Meteorologisches Observatorium, Hamburg), H. Silverstone (social and preventive medicine, Medical School, Queensland), G. K. Steigleder (Universitäts-Hautklinik, Frankfurt am Main), R. D. Sweet (dermatologist, Plymouth, England), F. Urbach (Skin and Cancer Hospital, Philadelphia), and E. Van Scott (dermatology, National Cancer Institute). The conference was held under the auspices of the National Cancer Institute, National Institutes of Health.

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**Forthcoming Events**

**September**

22-25. **Soil Micromorphology**, 2nd intern., Arnhem, Netherlands. (A. Jongerius, Stichting voor Bodenmartering, Postbus 10, Bennekom, Netherlands)

22-28. **Radiology**, 11th intern. congr., Rome, Italy. (L. Turano, Istituto de Radiologia, Univ. of Rome, Rome)

23-26. British Assoc. for **Cancer Research**, annual, Edinburgh, Scotland. (J. G. Bennette, Courtauld Inst., Middlesex Hospital, London, W.1, England)

23-26. **Viral Diseases of Poikilothermic Vertebrates**, New York, N.Y. (S. P. Snieszko, Eastern Fish Disease Laboratory, Leestown, P.O. Kearneyville, W.Va.)

24-27. **American Medical Writers' Assoc.**, annual, Philadelphia, Pa. (American Medical Writers Assoc., 2000 P St., NW, Washington, D.C.)

25-26. **Communications**, 3rd Canadian symp., Montreal, Quebec. (F. G. R. Warren, P.O. Box 802, Station B, Montreal)

27-30. Society of American **Foresters**, 64th annual, Denver, Colo. (SAF, Mills Bldg., Washington, D.C. 20006)

27-1. **Water Pollution Control Federation**, 37th annual, Bal Harbour, Fla. (WPCF, 3900 Wisconsin Ave., Washington, D.C. 20016)

27-2. Society of **Motion Picture and Television Engineers**, 96th technical conf., New York, N.Y. (SMPTE, 619 W. 54 St., New York, N.Y. 10019)

28-30. **Circuit and System Theory**, conf., Monticello, Ill. (W. R. Perkins,