Meetings

Neurospora

The first *Neurospora* Information Conference was held at the University of California, La Jolla, from 2 to 4 March 1961. It was attended by more than 100 invited participants, from both the United States and Canada, who use *Neurospora* for genetical research. The conference was sponsored by the Division of Biology and Agriculture of the National Academy of Sciences–National Research Council and was supported by the National Science Foundation and the U.S. Atomic Energy Commission. The immediate goal was to provide a forum for informal discussion of problems in the areas of research that are undergoing rapid development. Meetings were held in the auditorium of the Scripps Institute of Oceanography, and the local arrangements were made by D. M. Bonner, chairman of the department of biology.

The conference consisted of a series of informal round-table discussions between the most active investigators in each area. Summaries of the current status of research were given by the chairmen, and informal reports were then presented to stimulate general discussion of the topic by participants.

The session on cytology and ultrastructure, with S. Emerson (California Institute of Technology) as chairman, dealt with the ultrastructure of the vegetative mycelium, as revealed by electron microscopy, and the cell wall structure of ascospores. M. Zalokar (University of California, La Jolla) discussed the layering of intracellular components in centrifuged hyphae. T. Tsuda (Rockefeller Institute) compared the structure of normal hyphae with that of an inositol-requiring mutant. Cytoplasmic components of wild type were contrasted with those of a cytoplasmic mutant, by A. Miller (California Institute of Technology). A. Sussman (University of Michigan) showed that the cell wall of dormant and germinating ascospores consists of three different components. In the concluding report, G. Lester (Worcester Institute) reviewed his work on permeability in relation to cell structure.

Nuclear cytology and cytogenetics were covered in a session chaired by P. St. Lawrence (University of California, Berkeley). In the first half, the mechanism of mitosis and the morphology of somatic chromosomes were discussed by C. Somers (University of Texas), A. Bakerspigel (University of Toronto), and E. S. Dowding and J. Weijer (University of Alberta). In the second half, the elegant cytological studies of B. McClintock (Cold Spring Harbor) and J. Singleton (Purdue) on the different stages of meiosis and the morphology of each of the seven chromosomes during the postmeiotic mitoses were reviewed by McClintock. M. Mitchell (California Institute of Technology) reported on possible abnormalities in the development of asci and on the significance of morphological twins.

In an evening session chaired by R. W. Barratt (Dartmouth), various experimental techniques were discussed, including preliminary results with a new microinjection method developed by J. Wilson (Hartnell). In addition, Barratt and N. Strickland (Stanford) presented a revised linkage map and a pedigree showing the origin of many of the mutant and wild-type strains currently in use. A list of stock cultures— available from the new Fungal Genetics Stock Center at Dartmouth College—was presented to the participants. The problems of maintaining and adding to this collection, which is maintained by Barratt and W. Ogata, were described. The idea of publishing a newsletter for *Neurospora* workers was debated extensively. An overwhelming majority felt that there was a definite need for such a publication, and a "*Neurospora* Newsletter," edited by B. J. Bachman (Yale), is to appear in 1962.

A discussion of meiotic analyses of the more classical type was held in a session on reciprocal recombination, with D. D. Perkins (Stanford) as chairman. After a review by Perkins of the data on the nature of individual exchanges, the frequency of double exchanges, and chiasma and chromatid interference in *Neurospora*, there were discussions of chromatid interference, by Strickland; of negative chiasma interference, by D. Stadler (University of Washington); and of the genetic basis for variation in crossing over, by F. J. de Serres (Oak Ridge National Laboratory). The phenomena of "high negative interference" and "gene conversion" were discussed in a session on nonreciprocal recombination, of which de Serres was chairman. Correlations between the proportion of prototrophs of parental and recombinant genotypes

obtained in interallelic crosses with change in the map distance between markers were discussed by Y. Suyama (University of California, La Jolla) for *pyr-3* mutants, and by M. Case (Yale) for *pan-2* mutants. Mutant-specific effects discovered among *me-2* mutant crosses were presented by N. Murray (Stanford), and the effect of mutant 1710 on *hist-3* crosses was discussed by B. B. Webber (Oak Ridge). De Serres reported similar studies on high negative interference in crosses of closely linked but nonallelic mutants in the *ad-3* region. Preliminary data on the effect of chromosome rearrangements on interallelic recombination among *nic-2* mutants were given by St. Lawrence, and Case presented a tetrad analysis of a cross involving three different *pan-2* mutants to test for simultaneous conversion. The session was concluded with a discussion, led by N. Horowitz (California Institute of Technology), of various mechanisms that might explain the conversion and the high negative interference phenomena on a molecular basis.

Allelic complementation was covered in a session chaired by N. H. Giles (Yale), who reviewed the general incidence of this phenomenon in *Neurospora*. Techniques and criteria used in mapping *ad-4* mutants were given by D. O. Woodward (Brooks Air Force Base), and the relation between complementation and genetic maps was reported for *ad-8* mutants by T. Ishikama (Yale) and for *pan-2* mutants by Case. It was generally concluded that complementation maps are unidimensional and that complementation and genetic maps are colinear. A discussion of biochemical mechanisms for complementation in terms of possible molecular models concluded this session. Evidence favoring the protein-protein interaction hypothesis was discussed by J. R. S. Fincham (Massachusetts Institute of Technology), and interactions involving the protein-forming system were discussed by S. Wainwright (Dalhousie).

Genetic fine structure in relation to enzyme structure and activity was reviewed in a session led by S. R. Suskind (Johns Hopkins). Evidence for correlations between specific types of genetic damage with changes in the gene product at the protein level was discussed by Bonner (University of California, La Jolla) for the tryptophan synthetase mutants of *Neurospora* and by B. Maling and C. Yanofsky (both of Stanford) for similar mutants of *Escherichia*

coli. Similar correlations among the *hist-3* mutants between enzyme activity and map position were noted by Webber. Recent studies on the glutamic dehydrogenase produced by the *am* mutants of *Neurospora* were summarized by Barratt and Fincham.

Reversion in relation to enzyme structure and activity was discussed in a session chaired by Woodward. Bonner gave a theoretical account of the coding problem as it applies to studies of reverse mutation. The classes of revertants obtained among primary and secondary *ad-4* mutants in terms of differences in the levels of adenylosuccinase activity were given by Giles. Evidence for qualitatively different glutamic dehydrogenases in *am* revertants was presented by Fincham, and fingerprint analyses of the tryptophan synthetases of "A" mutant revertants of *E. coli* were shown and discussed by Yanofsky.

In the final session, led by Horowitz, the problem of genic interactions in protein synthesis was explored. Interactions between different genes in determining primary structure of proteins were reviewed by Yanofsky, who contrasted the findings among the tryptophan synthetase mutants of *Neurospora* and *E. coli*. Various types of interaction between mutant genes and their suppressors were discussed by Suskind for *td* mutants, by R. Davis (University of Michigan) for *pyr-3* mutants, and by B. Strauss (University of Chicago) for methionine mutants. M. Fling (California Institute of Technology) gave an example of interaction between structural and regulative genes and reported on recent work with the tyrosinase mutants of *Neurospora*.

A résumé of the proceedings will be published by the National Academy of Sciences–National Research Council.

F. J. DE SERRES
Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

Forthcoming Events

February

14–16. Biophysical Soc., 6th annual, Washington, D.C. (D. Cowie, Dept. of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., NW, Washington 15)

14–17. National Soc. of College Teachers of Education, Chicago, Ill. (E. J. Clark, Indiana State College, Terre Haute)

16–18. Medical Congr. in Honor of the Centennial of Bretonneau, Tours, France. (Directeur, École Nationale de Médecine, Tours)

17–24. Pan American Medical Women's Alliance, 8th congr., Manizales, Colombia. (C. Carthers, 1661 Riverside Ave., Suite B, Jacksonville, Fla.)

18–22. American Inst. of Mining, Metallurgical, and Petroleum Engineers, annual, New York, N.Y. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 17)

18–22. Technical Assoc. of the Pulp and Paper Industry, annual, New York, N.Y. (TAPPI, 360 Lexington Ave., New York 17)

19–21. American Educational Research Assoc., Atlantic City, N.J. (G. T. Buswell, 1201 16 St., NW, Washington 6)

19–21. Tracking and Command of Aerospace Vehicles, Inst. of the Aerospace Sciences, San Francisco, Calif. (IAS, 2 E. 64 St., New York 21)

19–22. American Concrete Inst., annual, Denver, Colo. (W. A. Maples, 22400 W. Seven Mile Rd., P.O. Box 4754, Redford Station, Detroit 19, Mich.)

19–22. Industrial Ventilation Conf., E. Lansing, Mich. (Engineering Dept., Michigan State Univ., E. Lansing)

19–23. American Soc. of Civil Engineers, Houston, Tex. (W. H. Wisely, 345 E. 47 St., New York 17)

19–23. Automatic Control in the Iron and Steel Industry, intern., Brussels, Belgium. (Institut Belge de Régulation et d'Automatisme, 98 Chausèe de Charleroi, Brussels 6)

20–21. International Inst. of Sugar Beet Researchers, winter congr., Brussels, Belgium. (O. J. Kint, HSBR, 152 rue Beauduin, Tirlemont, Belgium)

21–25. National Assoc. for Research in Science Teaching, Washington, D.C. (H. Branson, Dept. of Physics, Howard Univ., Washington 1)

22–24. American Acad. of Forensic Sciences, Chicago, Ill. (W. J. R. Camp, Univ. of Illinois, 1853 W. Polk St., Chicago 12)

22–24. Genetics Soc. of Canada, Winnipeg, Man., Canada. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa, Ont., Canada)

23–24. American Physical Soc., Austin, Tex. (K. K. Darrow, APS, Columbia Univ., New York 27)

23–24. Canadian Aeronautical Inst., mid-season meeting, Halifax, Nova Scotia. (Scientific Liaison Office, Natl. Research Council, Sussex Dr., Ottawa, Canada)

25–1. Pan American Assoc. of Oto-Thino-Laryngology and Broncho-Esophagology, Caracas, Venezuela. (C. M. Norris, 3401 North Broad St., Philadelphia 40, Pa.)

26–28. Importance of Electricity in the Control of Aircraft, conf., Inst. of Electrical Engineers–Royal Aeronautical Soc., London, England. (Secretary, IEE, Savoy Place, London, W.C.2)

26–29. Central Treaty Organization, Economic Committee, Washington, D.C. (Office of Intern. Conferences, Dept. of State, Washington 25)

26–2. Current Trends in Nuclear Power, symp., Tucson, Ariz. (L. Weaver, Nuclear Engineering Dept., Univ. of Arizona, Tucson)

27–1. Application of Switching Theory in Space Technology, symp., Palo Alto, Calif. (J. P. Nach, Lockheed Aircraft Corp., Sunnyvale, Calif.)

(See 19 January issue for comprehensive list)