some. This precursor is not histone itself, because histone, qualitatively at least exists in the puffing region throughout the duration of the puff. Further suggestions that steroid hormones act by intervention at the level of control of genetic activity are provided by the cases of evocation by estrogens of RNA and protein synthesis in uterine tissue, by testosterone in the prostate gland, and by the flowering hormone, also presumably a sterol, in the bud, which is the subject of floral induction. In the latter case, too, a dramatic reduction of the ratio of histone to DNA accompanies the inductive action of the hormone, suggesting that steroids can in some manner bring about the removal of histone from chromatin. A principal difficulty in the study of the role of histones in morphogenetic events is the quantitative and specific determination of histone. Cytochemistry of histones is still unsatisfactory. Acid fixation removes an unknown amount of histone from the test material. Fast Green, the standard histone stain, stains basic proteins in addition to histones, such as ribosomal structural protein. Better histochemical methods for histones are needed (*Speakers*: U. Clever, H. Swift, J. A. D. Zeevaart, E. Gifford, D. Bloch, W. Vincent, and M. Zalokar).

Histones constitute a principal constituent of the chromosome, and are associated intimately with the chromosomal DNA. In this association the histone renders the DNA inert in RNA-making. The way in which histone carries out its function appears to require understanding of the structure of nucleohistones. If the histones constitute the repressor of genetic activity which participates in and is responsible for the programming of the transcription of genetic information during the course of development, a high degree of specificity would be required of the histone-DNA interaction. In the past, attention has been focused mainly on the ionic nature of this interaction. There are other possible types of interaction of a weaker, but more selective, nature. One could, for example, think of the possibility of specific adapter molecules. Such adapters, if present, might enable histones to form specific complexes with DNA of specific information content (*Speakers*: K. Murray, J. Vinograd, R. L. Sinsheimer, H. S. Swift, I. R. Lehman, and R. Dulbecco).

The conference was held under the auspices of the division of biology, California Institute of Technology, with the joint fiscal support of the National Science Foundation, the Office of Naval Research, and a special gift from H. Kirke Macomber. It was attended by 56 invited participants representing Canada, England, France, Germany, Japan, Scotland, Switzerland, and the United States.

The proceedings of the conference will be published by Holden-Day, Inc., in the later part of 1963.

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Molecular Structure and Spectroscopy

Molecular forces, interactions, and structure and new spectroscopic techniques were the main topics of interest at the 17th annual symposium on molecular structure and spectroscopy at Ohio State University, 10–14 June.

In a critique on nonbonded forces, E. B. Wilson, Jr. (Harvard), cautioned that most of the present attempts at determining such forces do not lead to an unambiguous interpretation. He presented the results of some microwave studies of the forces involved in barriers hindering internal rotation. One result is that in 1-substituted propylenes, $CH_3C{=}CHX$, the *cis*-form has a much lower barrier than the *trans*-form. This presumably is a result of interaction between the methyl group and the substituent X. The cases where X=F, Cl, CN, and CH_3 have been studied.

Some very interesting work on energy transfer was described by G. W. Robinson (C.I.T.) and his co-workers in several papers dealing with exciton interactions in organic crystals. A direct measurement of triplet exciton interactions and information about the lowest singlet were gained from studies of mixed crystals of benzene and deuterobenzenes. By using isotopic species, preservation of the lattice symmetry and uniform mixing was assured. By varying the amount of deuteration in the isotopic species used, the depth of the exciton trap could be changed in a known manner. It was calculated that approximately 10^{12} nearest-neighbor excitation transfers could occur during the lifetime of the triplet.

W. H. Flygare (Illinois) proposed a

method of studying molecular electric hexadecapoles through the influence of rare gas matrices on the rotational energy levels of trapped molecules. He showed that, for molecules occupying sites of octahedral symmetry, no terms before the hexadecapole in a multipole expansion of the molecular charge distribution can interact with the field of the surrounding lattice. He calculated the effect of this interaction on the rotational energy and showed how it could be used to obtain the hexadecapole.

One of the most interesting molecular structure studies was done by molecular beam methods on alkaline earth dihalides. Wharton, Berg, and Klemperer (Harvard) reported that many of these are not linear, as previously thought. They found that BaF_2, $BaCl_2$, $BaBr_2$, BaI_2, SrF_2, $SrCl_2$, and CaF_2 are deflected by inhomogeneous electric fields and thus have an electric dipole moment which implies a bent structure. On the other hand $CaCl_2$, $CaBr_2$, $SrBr_2$, and SrI_2 appear to be nonpolar and presumably linear.

Two experimental methods of determining molecular structure, spectroscopy and electron diffraction, were discussed by V. W. Laurie (Stanford) and L. S. Bartell (Iowa State), respectively. In both techniques the problem of molecular vibrations is now the limiting factor on accuracy, and methods for partially correcting for this were presented. However, anharmonicity of vibrations is still a major problem.

Applications of masers in the infrared and optical region is of considerable interest at the present time. C. H. Townes (M.I.T.) discussed presently available sources and described experiments designed to improve greatly the Michelson-Morley experiment which tested the existence of the ether. B. P. Stoicheff (National Research Council of Canada) presented some results of using optical masers as sources for Raman spectroscopy and also described some studies on coherent Raman effects. Other speakers (Porto, Cheesman, and DeSiqueria, Bell Telephone) reported on the use of the ruby optical maser as a Raman source.

The Triple Commission for Spectroscopy held a meeting in conjunction with the symposium; its sessions dealt with several problems in astronomy, such as the application of computers to the analysis of some spectra (J. G. Phillips, University of California, Berkeley) and the spectra of atoms and molecules which had been observed in stellar atmospheres (P. C. Keenan, Ohio State).

Abstracts of the papers can be obtained from H. H. Nielsen, Department of Physics, Ohio State University, Columbus.

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Forthcoming Events

September

2–7. Dynamic **Meteorology**, intern. symp., Boulder, Colo. (W. L. Godson, Intern. Assoc. of Meteorology and Atmospheric Physics, 315 Bloor St. West, Toronto, Ont., Canada)

2–7. International **Phycological** Soc., Naples, Italy. (J. Th. Kosher, Rijksherbarmin, Nonnensteeg 1, Leiden, Netherlands)

2–7. **Space** Technology and Science, intern. symp., Tokyo, Japan. (I. Tani, Japanese Rocket Soc., 1-3 Ginza-Nishi, Tokyo)

2–12. **Genetics**, 11th intern. congr., The Hague-Scheveningen, Netherlands. (S. J. Geerts, Genetisch Laboaraorium, Driehuizerweg 200, Nijmegen, Netherlands)

2–13. Epidemiology and Biometeorology of **Fungal Diseases of Plants**, symp. (by invitation only), Pau, France. (R. D. Schein, Dept. of Plant Pathology, 113 Buckhout Laboratory, Pennsylvania State Univ., University Park)

3–6. **Entomology**, Canadian centennial, Ottawa, Ont., Canada. (Executive Committee, K. W. Neatby Bldg., Carling Ave., Ottawa)

3–8. **Anesthetics**, 1st European congr., Vienna, Austria. (K. Steinbereithner, Medizinische Akademie, Alserstrasse 4, Vienna 9)

4–5. **Industrial Design**, 1st intern. technical conf., Leipzig, Germany. (Sekretariat der Tagungskommission, Kammer der Technik, Hauptausschuss, Abt. Technischer Fortschritt, Klara-Zetkin-Str. 115-117, Berlin W.8, Germany)

4–6. Inorganic **Fluorine Chemistry**, symp., Argonne, Ill. (L. Stein, Chemistry Div., Argonne Natl. Laboratory, 9700 S. Cass Ave., Argonne)

4–6. **Proteins** and Their Reactions, symp., Corvallis, Ore. (A. F. Anglemier, Dept. of Food Science and Technology, Oregon State Univ., Corvallis)

4–7. **Biometric Soc.**, Eastern North American region, Cleveland, Ohio. (E. L. LeClerg, Biometrical Services, U.S. Dept. of Agriculture, Plant Industry Station, Beltsville, Md.)

4–7. **Production Engineering** Research, intern. inst., 13th general assembly, Pittsburgh, Pa. (E. Merchant, Cincinnati Milling Machine Co., Cincinnati 9, Ohio)

4–7. **Mössbauer Effect**, 3rd intern. conf., Ithaca, N.Y. (A. J. Bearden, Dept. of Physics, Cornell Univ., Ithaca)

4–7. American **Statistical** Assoc., Cleveland, Ohio. (R. T. Bowman, Office of Statistical Standards, Bureau of the Budget, Executive Office Bldg., Washington 25)