the subsequent developments with polyoma virus, and finally, the data which point to a crumbling of the artificial barriers separating infectious or inflammatory from oncogenic viruses such as the simian virus, SV40, and adenoviruses 12, 18, and 7. In concluding his remarks, he said that the lessons learned so far could be used therapeutically by controlling the trigger factors, such as avoidance of undue exposure to radiation, chemicals, hormones, toxic fumes, air pollution, smoking, obesity, and others. Vaccines were not to be looked for in the immediate future, but could logically be hoped for after the many complex problems which still lie before us have been solved.

Leon Dmochowski (M. D. Anderson Hospital, Houston, Texas) then brilliantly reviewed the subject of viruses and their relationship to animal and human tumors. He not only expanded many of the ramifications already explored by Gross, but he detailed the possible role of viral DNA and RNA. He illustrated his talk with lantern slides of electron microscopic pictures of viruses and PPLO or mycoplasmas obtained from some 40 percent of a small number of cases of human leukemia and lymphoma. The reason for the presence of PPLO organisms with virus particles in the blood and various organs of humans suffering with leukemia and lymphoma is not understood, but both have been grown in tissue cultures of human leukemic cells. Should it ever be possible to produce leukemia in experimental animals with the particles from humans seen by Dmochowski, a major advance in relating viruses to human cancer will have been made.

J. GERSHON-COHEN, *Program Arranger*

Dentistry (Nd)

A number of considerations relating to the complex subject of environmental influences on dental caries and periodontal disease and the mechanisms involved in congenital malformations were presented by 20 participants in the four-session symposium on environmental variables in oral disease (26–27 December 1964).

First-day presentations emphasized the wide range of concepts that have evolved on the causes of the major oral diseases and the need to re-examine these in the light of current advances in the fundamental biological sciences. For example, although caries-producing microörganisms are ubiquitous, they undoubtedly have a variable geographic distribution. Thus, dental decay is lower in the Far East than it is in North America, despite the fact that Far Easterners do not brush their teeth or eat what we commonly consider to be protective foods. It is also significant that Alaskan Eskimos and East Indians develop more dental decay when they are transplanted from their traditional rural cultures to cities where other cultures predominate. In interesting parallel, a study of laboratory animals showed that genetic influences on the prevalence and severity of dental caries can be appreciably altered by changing the diet as well as the bacterial flora in the mouth.

With respect to other environmental factors, epidemiological studies were presented which showed that trace amounts of a number of elements in food, soil, and water can have a marked effect on the decay process. Although conclusive evidence has been assembled regarding the efficacy of fluoride as a caries control measure, the additional presence of trace levels of different elements such as selenium, vanadium, molybdenum, boron, and aluminum must be considered insofar as they may exert either potentiating or modifying effects on the action of the fluoride ion.

Presentations during the second day of the symposium were related in major part to a consideration of external environmental and systemic influences on the occurrence of congenital malformations. These included the teratogenic effects (notably palatal clefts) caused by excessive feeding of vitamin A to rodents; and the mechanisms by which certain chemical agents influence fetal growth and development. In the latter category, it was reported that certain antihistamines, which are teratogenic under experimental conditions in rats, have a common structural configuration, whereas other antihistaminic compounds without this characteristic configuration are not harmful. Further understanding of the specific mechanisms involved in teratogenic drug actions (for example, meclizine) was made possible by the identification of a metabolic breakdown product (norchlorcyclizine) that is capable of producing the identical malformations caused by the parent antihistamines.

The program was arranged by Frank J. McClure and Seymour J. Kreshover (National Institute of Dental Research). Cosponsoring the symposium were Section E (Geology and Geography), Section O (Agriculture), and Section N (Medical Sciences) of the AAAS; and the American Dental Astion, the International Association for Dental Research (North American Division), and the American College of Dentists.

SEYMOUR J. KRESHOVER, *Secretary*

Pharmaceutical Sciences (Np)

Section Np held nine sessions which included 32 contributed papers, one symposium, and the Section Np distinguished lecture.

The first 16 papers were arranged by George F. Archambault (U.S. Public Health Service), Don E. Francke, and Joseph A. Oddis (American Society of Hospital Pharmacists) and focused on the general area of hospital pharmacy. Abraham Wolfthal (U.S. Public Health Service) discussed in detail the planning and management of pharmaceutical and medical supply services for national boy scout jamboree encampments. Archambault emphasized the responsibilities of the hospital pharmacist regarding proprietary drugs used for self-medication and discussed the lack in this area of readily accessible information to hospital pharmacists. Paule Benfante, Isodore Gesser, and Andre Lemieux (Hôpital Notre-Dame) presented a paper on incompatibilities of chloramphenicol succinate and sodium sulfadiazines as well as a series of other preparations commonly used in hospitals. Arthur R. Whale (The Upjohn Company) discussed the importance of the present patent system in scientific research. Harold J. Black and William W. Tester (University of Iowa) described an experimental drug distribution system which utilized unit dose packaging and dispensing. The basic design of the study included the establishment of a decentralized pharmacy substation adjacent to the internal medicine beds which were served. Claude V. Timberlake and Lt. Milton R. Kaplan (Defense Medical Material Board) discussed the military pharmacist's responsibility in quality

Dentistry (Nd)

Seymour J. Kreshover

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