Several procedures have been used to interfere with the normal process of prenatal development. Some are: alteration of embryonic development by irradiation during cleavage, injection of macromolecules in the eggs with a micropipette, destruction of blastomeres, and the augmentation of blastomere number by fusing two embryos to form a single chimeric individual.

Several preparations of gonadotrophins (FSH, LH, PMS, and HCG) have been used to induce superovulation and produce many fertilized eggs from the donor females. Hormonal methods have also been used to synchronize the estrous periods of recipient females. Investigations of egg transfer in different species of laboratory animals provided a useful background for practical applications in the improvement of livestock and perhaps also in human gynecological practice. Eggs have been transferred successfully in pigs, sheep, and cattle by surgical and non-surgical methods. These methods will be refined in the future to increase their usefulness. The application of egg transfer in research is not limited to studies on egg maturation, fertilization, and development. The range of the subject already includes such wider aspects of general biological interest as interactions between the embryo and uterus, immunological relationships between the conceptus and mother, and developmental genetics.

Brinster has indicated that the basic medium for the cultivation of oviductal mammalian embryos might consist of: (i) the salts in blood plasma, or Krebs-Ringer bicarbonate; (ii) a sodium bicarbonate buffer with a concentration of approximately 25 mmole; (iii) an atmosphere containing 5 percent CO_2 in the gas phase; (iv) a *p*H of approximately 7.4 which would be the result of items (ii) and (iii); (v) a protein concentration of 1 to 10 mg/ml; (vi) a glucose concentration of 1 mg/ml; (vii) a pyruvate concentration of about $5 \times 10^{-4} M$. Supplementary compounds such as serum, embryo extract, lactate, amino acids, vitamins, and cofactors could be added. The use of complex natural or undefined substances in the medium makes it hard to determine the exact effect of other omissions or additions to the medium.

If the current rate of increase continues, the world's population will double between 1960 and 1995, and reach 6 billion before 2000 A.D. The predicted increase is based on the UN-calculated world growth rate of 2 percent per year. Southam of the Ford Foundation has shown that many countries began family planning programs in the last few years. In the 13 developing countries with populations of 25 million or more, at least 11 have national programs or family planning activities in government facilities. Many men and women in developing countries generally accept the concept of family planning. A clear understanding of oviductal physiology is needed for clinical treatment of sterility and for contraception because of the critical early phases of reproduction in the oviduct and the influence that substances transported to the oviductal lumen could have on conception.

Ligation of the oviduct is a fine procedure for sterilization rather than family spacing. The surgery requires a 6- to 7-day hospitalization—an economic setback, and it is reversible in no greater than 30 percent if the mother changes her mind. The mortality rate is less than 1 percent. The morbidity is considerably higher than one expects, and some of the symptoms that follow are congested pelvic pain and hypermia in a small percentage of cases. This procedure is very important in some parts of the world. A refinement of the traditional procedure does not require an abdominal incision. The tubal ligation or cauterization is carried out by cautery inserted through a laparoscope, requiring only 24-hour hospitalization.

Other oviductal procedures have been studied for effectiveness in birth control. A surgical glue (methyl 2-cyanoacrylate nonomere) injected into the oviduct binds well, but is very difficult to apply without attaching segments of the bowel. More importantly, the substance may be carcinogenic. Also studied was a silastic plug, injected into the oviduct in fluid form. When solidified, the plug would be relatively easy to remove when desired. However, peristalsis of the oviduct may eject the silicone plug, permitting the transport of the eggs and sperm.

Steroid hormones are being used extensively in fertility control without basic knowledge of the way they function. A thorough understanding of the proper hormonal balance needed for preparing the sperm for fertilization in the female reproductive tract would greatly enhance sterility treatment. Likewise, the mechanism of inhibition of sperm fertilizing ability by progesterone would aid contraceptive approaches.

Using fluorescent techniques, Glass showed that the egg can take up both native and foreign serum antigens. This and other work raises the possibility of influencing the development of the egg at the oviductal level. Little is known about oviductal influence on capacitation of sperm and the effect of oviductal fluid on fertilization. S. J. Behrman estimated that at least 10 percent of all unexplained infertility in man is due to a naturally occurring immune phenomenon. Positive sperm agglutinating antibodies are a very rare occurrence in the normal population, but common in prostitutes possibly due to excessive exposure to the sperm antigen.

The proceedings of the symposium, edited by E. S. E. Hafez and R. J. Blandau, are being published by the University of Chicago Press.

This monograph has a twofold purpose: to stress the need to study the entire oviduct in mammalian species at all levels of evolution in order to gain a full understanding of its function, and to explore how far such studies in laboratory animals can clarify similar problems in domestic animals and man.

The symposium was generously supported by the National Institute of Child Health and Human Development (PH-43-67-672); Population Council (M67.011); Ayerst Laboratories; Bay Histology Service; Ciba Pharmaceutical Company; Diamond Laboratories; Hoyt Foundation; Marion Laboratories, Inc.; Micro-biological Associates, Inc.; Ortho Research Foundation; Schering Corporation; Searle & Company; Squibb & Sons; Syntex Research; and Upjohn Company.

E. S. E. HAFEZ
Washington State University, Pullman

Calendar of Events—January

National Meetings

4–6. **Human Factors in Automotive Engineering** Design, Ann Arbor, Mich. (Society of Automotive Engineers, Continuing Education Program, 485 Lexington Ave., New York 10017)

7–12. American **Chemical** Soc., New Orleans, La. (Meetings Manager, 1155 16th St., NW, Washington, D.C. 20036)

8–9. National Specialists Symposium on **Orbital Resonance**, Redondo Beach, Calif.

(G. S. Gedeon, Systems Group, TRW, Inc., One Space Park, Redondo Beach 90278)

8–12. Automotive **Engineering** Congr. and Exposition, Detroit, Mich. (W. I. Marble, Soc. of Automotive Engineers, Meetings Div., 485 Lexington Ave., New York 10017)

9–11. **Chemical Marketing**, Hopatcong, N.J. (Saul Gordon Associates Center for Professional Advancement, P.O. Box 66, Hopatcong 07843)

10–13. National Soc. of **Professional Engineers**, winter mtg., Washington, D.C. (P. H. Robbins, NSPE, 2029 K Street NW, Washington, D.C. 20006)

11–12. Wires for **Electrical Conductors**, Philadelphia, Pa. (American Soc. for Testing and Materials, 1916 Race St., Philadelphia 19103)

14–18. Society for **Cryo-Ophthalmologists**, Miami Beach, Fla. (J. G. Bellows, Executive Sceretary, 30 N. Michigan Ave., Chicago, Ill. 60602)

15–16. **Medical Library** Board, Washington, D.C. (Medical Library Assoc., Inc., 919 N. Michigan Avenue, Chicago, Ill.)

15–17. **Noise Measurement and Control**, Hopatcong, N.J. (Saul Gordon Associates Center for Professional Advancement, P.O. Box 66, Hopatcong 07843)

15–17. **Paint, Varnish, Lacquer**, and Related Products, Cincinnati, Ohio. (American Soc. for Testing and Materials, 1916 Race St., Philadelphia, Pa. 19103)

15–17. Use of **Data Mechanization and Computers in Clinical Medicine**, New York, N.Y. (E. R. Gabrieli, Director, Clinical Information Center, SUNY, Buffalo, N.Y. 14215)

15–18. **Environmental Sciences** Research Symp. (Solid Waste Disposal, Air Pollution, Agricultural Pollutants, Water Quality, Corrosion), New Orleans, La. (E. Klein, Director, Physical Chemistry, P.O. Box 26500, New Orleans 70126)

16–18. **Reliability** Symp., Boston, Mass. (V. R. Monshaw, Astro-Electronics Div., RCA, Box 800, Princeton, N.J. 09540)

17–19. **Nuclear Medicine**, postgraduate symp., St. Louis, Mo. (E. J. Potchen, Washington Univ. School of Medicine, St. Louis, Mo. 63110)

17–19. **Process Industries**, instrumentation symp., College Station, Tex. (R. G. Anthony, Texas A&M Univ., College Station)

18–20. **Pediatrics**: Diagnosis and Treatment of Disorders of Perception, Speech and Learning, Gainesville, Fla. (Division of Postgraduate Education, P.O. Box 746, J. Hillis Miller Health Center, Gainesville 32601)

19–20. American **Rheumatism** Assoc., mtg., Baltimore, Md. (M. M. Walsh, ARA Headquarters, 1212 Ave. of the Americas, New York 10036)

19–20. American Soc. for **Surgery of the Hand**, annual mtg., Chicago, Ill. (R. M. Curtis, The Society, 2947 St. Paul St., Baltimore, Md. 21218)

19–20. **Blood**, 16th annual symp., Detroit, Mich. (W. H. Seegers, Chairman, Dept. of Physiology and Pharmacology, Wayne State Univ. College of Medicine, Detroit 48207)

20–25. American Academy of **Orthopaedic Surgeons**, annual mtg., Chicago, Ill. (J. K. Hart, AAOS, 29 E. Madison, Chicago 60602)

22–23. **Industrial Research**, 3rd annual, Chicago, Ill. (V. H. Disney, IIT Research Inst., 10 W. 35 St., Chicago 60616)

22–24. **Aerospace** Sciences mtg., New York, N.Y. (Meetings Manager, American Inst. of Aeronautics and Astronautics, 1290 Ave. of the Americas, New York 10019)

22–24. **Coal and Coke**, Philadelphia, Pa. (American Soc. for Testing and Materials, 1916 Race St., Philadelphia 19103)

22–24. **Radioisotopes and Radiation Effects**, New Orleans, La. (American Soc. for Testing and Materials, 1916 Race St., Philadelphia, Pa. 19103)

22–26. **Basic Electronics**, Hopatcong, N.J. (Saul Gordon Associates Center for Professional Advancement, P.O. Box 66, Hopatcong 07843)

22–26. **Marine Sciences Instrumentation,** 4th natl. symp., Cocoa Beach, Fla. (M. Reed, Instrument Soc. of America, 530 William Penn Pl., Pittsburgh, Pa. 15219)

22–26. **Powder X-Ray Diffractometry**, Austin, Tex. (D. E. Griffith, Program Director, Taylor Hall 153, College of Engineering, University of Texas, Austin 78712)

22–27. **Air Conditioning** Principles and Practices, Austin, Tex. (D. E. Griffith, Program Director, Taylor Hall 153, College of Engineering, University of Texas, Austin 78712)

23. **Industrial Associates** Research Review, Houston, Tex. (D. E. Griffith, Program Director, Taylor Hall 153, College of Engineering, University of Texas, Austin 78712)

23. Preventive and Therapeutic Aspects of **Coronary Heart Disease**, conf., New York, N.Y. (Conference Planning Committee, New York Heart Association, 10 Columbus Circle, New York 10019)

23–26. Council on **Social Work Education**, Minneapolis, Minn. (P. Stickney, Council on Social Work Education, 345 E. 46 St., New York 10017)

23–26. **Water**, Technical Committee mtg., West Palm Beach, Fla. (American Soc. for Testing and Materials, 1916 Race St., Philadelphia, Pa. 19103)

23–27. American Mathematical Soc., 74th annual, San Francisco, Calif. (G. L. Walker, American Mathematical Soc., Box 6248, Providence, R.I. 02904)

24–25. **Health Physics**, 2nd mid-year symp., Augusta, Ga. (C. M. Patterson, E. I. duPont, Savannah River Lab., Aiken, S.C. 29801)

25–27. **Mathematical** Assoc. of America, 51st annual, San Francisco, Calif. (H. M. Gehman, MAA, Executive Director, c/o SUNY at Buffalo, N.Y. 14214)

25–27. **Symmetry Principles** at High Energy, 4th conf., Coral Gables, Fla. (Conf. on Symmetry Principles at High Energy, Center for Theoretical Studies, University of Miami, Coral Gables)

27–1. American Group **Psychotherapy** Assoc., conf., Chicago, Ill. (M. Schiff, AGPA, Room 702, 1790 Broadway, New York 10019)

28. Fourth **Mössbauer** Symp., Chicago, Ill. (P. A. McNulty, New England Nuclear Corp., 575 Albany St., Boston, Mass. 02118)