Recent advances in genetics and developmental biology make it possible to influence specific characteristics of the offspring: control of sex, mastery of genetic disease, propagation of specific genotypes, or establishing the biological basis for specialized skills. Knowledge of deoxyribonucleic acid biochemistry has been applied to specific developmental situations.

The diagnosis of fetal sex chromatin may be useful for antenatal care in cases of sex-linked hereditary disorders. Makamo and de Watteville examined the fetal membrane of 8184 infants to determine the nuclear sex. Sex chromosomal anomalies occurred in 0.13 percent of the cases. The incidence of XXY, XXX, and XO in newborns is estimated to be 1/750 in males, 1/1000 in females, and 1/3000 in females, respectively.

At the congress a new organization was formed, the International Federation on Fertility Associations, an outgrowth of the International Fertility Association. P. H. de Watteville (Switzerland) has been elected to head the new federation.

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Fermentation Industries: Promising Future Predicted

A promising future for the fermentation industries was forecast by C. G. Heden (Karolinska Institute, Stockholm) and A. F. Langlykke (Rutgers University) at the Third International Fermentation Symposium held at Rutgers University (2–6 September 1968). The meeting was sponsored by the Division of Microbial Chemistry and Technology of the American Chemical Society, and the Fermentation Industries Section of the Applied Chemistry Division of the International Union of Pure and Applied Chemistry (IUPAC).

The theme of the Symposium "Fermentation Advances in the Light of Recent Theoretical Progress in Microbiology, Biochemistry and Engineering" was examined. Two major benefits derived from this symposium by the 800 participants (representing 20 countries) were the opportunity to hear reports of recent advances in fermentation technology and to hear of prospects for the immediate future of the fermentation industries.

New fermentation products and processes which might reach commercial-scale production in the near future were discussed. These included Monensin, an antibiotic with coccidiostatic properties, which is comparable in potency and has lower toxicity than many of the synthetic organic chemicals now used for this purpose; glucose isomerase, a streptomycete enzyme converting glucose to fructose, which is now used to prepare syrups for the confectionary trade; a new rennin-like enzyme from a fungal source found acceptable to replace the calf-stomach-derived enzyme used in cheese making and now in short supply; a new process for obtaining erythorbic acid (iso-ascorbic) by direct mold fermentation of glucose; a microbial conversion of pentaerythritol to tris (hydroxymethyl) acetic acid; a tartaric acid producing fermentation of glucose; and two new microbial products with insecticidal properties.

The microbial conversion of hydrocarbons to edible, useful protein was discussed in more than a dozen papers with emphasis on technology required for economic production of the microbial cells. The biological value of proteins and the varieties of useful hydrocarbons (including methane) were also discussed in detail. With the world sugar shortage on the horizon, *N*-paraffins were proposed as economically feasible substrates for fermentation processes producing the food supplements glutamic acid and ribonucleic acid.

Three discussion panels considered a diversity of problems which may affect the fermentation industries now and in the future. The possibilities of using enzymes to carry out useful transformations of steroids, antibiotics, and terpenes, as well as the utility of enzymes attached to fixed supports, attracted much attention. The panel discussion on patent protection of fermentation processes emphasized the differences in the various countries in the world and the limitations of preventing infringement. A group of tissue-culture experts presented information on tissue culture as a fermentation process for production of cells, enzymes, protein hormones, and steroid hormones.

The Fourth International Fermentation Symposium will be held in Tokyo, Japan, in 1972 under the sponsorship of the IUPAC and several Japanese fermentation societies. Information concerning this meeting may be obtained from Professor G. Terui, Osaka University, Osaka, Japan.

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