There is an increasing awareness of the problems which result from the present rapid growth of the world population. The Malthusian nightmare of population exceeding the food supply has become a reality today. The Government of India has taken up a comprehensive and dynamic programme for the promotion of fertility control and this has been done on a scale that is unprecedented in the history of any country in the world. The programme is also beginning to have some effect on birth prevention as shown by the 1971 census.

Experience with India’s family planning programme has demonstrated that there is a need for a variety of methods of fertility control to satisfy the population with varied social, cultural and economic backgrounds which strongly influence the choice of a particular method of fertility control. Birth control is reported to have been practised, or any way attempted for about 4,000 years at least. The date of the earliest recorded contraceptive is said to be 1850 B.C. when women of Egypt are reported to have used a complicated recipe of a number of miscellaneous substance as a vaginal contraceptive. The ancient medical literature of India is full of references with regard to recipes of various plants and minerals recommended for both oral and local use mainly by women for prevention of conception.

With advancing scientific knowledge the traditional folklore-based methods have given way to pragmatically proven methods of preventing fertility. Some contraceptives are now available, but it is clear that concentrated efforts are still needed to provide a technically effective, acceptable and inexpensive method of contraception.

The scientific basis for effective techniques has broadened in recent years because of the identification of many of the intricate steps involved in contraception. The understanding of the biological mechanism involved in the process of development would mean knowledge of development of germ cells, their maturation and release, the mechanism of ensuring their union, implantation of zygote, the maintenance of embryogenesis and foetal development, delivery of the offspring and its survival. While some advances have been made in this area, such as hormone regulation of reproductive functions, there are large gaps in our knowledge with regard to the basic physiological mechanisms involved in these reproductive processes. For example the factors controlling sperm capacitation, transport of both ova and sperm, fertilization and implantation are still obscure.

*Delivered at the occasion of the inauguration of the Symposium on Drugs and Agents used for Fertility Control at the XVII Annual Conference of the Association of Physiologists and Pharmacologists of India at Trivandrum, March 5th, 1972.

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In the current scientific approach, basic research on physiology of reproduction, with particular reference to primates and human, and research on the development of contraceptives is bound to overlap considerably, because they are essentially two different aspects of the same problem. On the one hand the more we know about the physiological mechanisms the more likely it is that suitable leads will appear which may be relevant to the finding of methods of modifying these mechanisms by contraceptives. On the other hand, information resulting from research on development of contraceptives may provide valuable clues to the understanding of the other basic physiological mechanisms involved in perfecting contraceptive techniques.

Accordingly, areas of research on contraceptive aspects that may be expected to yield useful results must be given priorities and equal emphasis. I am not very enthusiastic about the much emphasis which is now being made on the presumed advantage of observations on simulated human primates over those on human themselves. Clinical research should not be relegated to a secondary place. It is as important if not more important in a country like India, as basic research.

There is a great need to enlarge research output in the field of fertility control and the Indian Council of Medical Research is very much alive to the importance of such research. The Council has been active in the past, in stimulating and coordinating clinical and laboratory research projects in reproductive biology and fertility control. Control of human fertility at present one of the major foci of research endeavours in this field. Typical of the projects supported by the Council in the field of fertility control include neuroendocrine mechanisms through which hormonal steroids modify the synthesis and/or release of pituitary gonadotropins; the relationship between the chemical structure of steroids and their biological specificity; effect of contraceptive drugs on the female reproductive tract; intravasal contraceptive devices (IVCD) for temporary sterilization in the male.

While I have no intention to present a comprehensive review of developments in research in this important field, I cannot fail to touch upon the advances that have been in the field of hormone pharmacology and development of contraceptive technology with many different approaches notably the oral, injectable, intrauterine and intravaginal steroids, anti-fertility compounds from plants and different types of intrauterine devices including the latest T device and the 7 device with copper. With the abortion law coming into force prostaglandins as menstruation regulating agents assume great importance.

Hormonal contraception has developed during the last decade e.g., changes in the combination of the available progesterones with one or two oestrogens, a general reduction in dose resulting in changes in the relative proportion of the oestrogenic and progestogenic components. Progestone in small dose taken orally without interruption is another important develop
July 1972

Ind. J. Physiol. Pharmacology of reproduction with the development of contraceptives, two different aspects of the same biological mechanisms the more to the finding of the means, on the other hand, information resulting from valuable clues to the understanding in perfecting contraceptive methods that may be expected to yield important results of observations on subjects is valuable information to the underestimation in the field of fertility control and the importance of such research. The coordination of clinical and laboratory research is essential. Typical of the projects that have been in the field of neuroendocrine mechanisms, their release of pituitary gonadotrophins and their biological specificity; intravascular contraceptive device development of materials such as polyethylene, nylon or stainless steel, all of which tend to reduce tissue reaction, and the development of insertion techniques that did not require dilatation of cervix.

In the field of intrauterine devices, chief innovations have been the use of materials such as polyethylene, nylon or stainless steel, all of which tend to reduce tissue reaction, and the development of insertion techniques that did not require dilatation of cervix.

In the field of prostaglandins, initial reports of successful termination of pregnancies with parenteral administration have appeared in world literature. Several years of intensive research and development will be required to establish this new technology on a sound basis.

It is only by holding such periodic discussions and exchange of thoughts among scientists that we can hope to make further advances which are so essential in this important field. The large gaps in knowledge of normal reproductive processes still constitute a major obstacle to the evaluation of some of the immediate and long-term biological effects of the fertility regulating agents currently in use.

I am happy that it has been possible for the Council in association with the Association of Physiologists and Pharmacologists of India to hold this symposium on 'Drugs and Agents used for Fertility Control'. I hope it will help to stimulate continuing research efforts which is needed to promote knowledge essential for insight for the development of new contraceptive methods. Your efforts here will be an integral part of the global efforts to solve the greatest problem facing mankind. I shall be looking forward to the results of your deliberations.