INTRODUCTION
After completion of her family, a woman usually seeks a contraceptive method that is safe and that may be used for the rest of her fertile life. The comparatively young woman frequently rejects permanent sterilisation for this purpose. Vast numbers of women are unable to use IUDs, while others are uncomfortable with the idea of long-term ingestion of biologically active steroids. A safe barrier method -- one that does not disrupt sexual activity, does not affect the normal menstrual periods or contain any biologically active substances, and possesses at least potential reversibility -- would be ideal for this type of woman. The development of the hydrogelic barrier, which may be applied to the intramural part of the fallopian tube, appears to satisfy all these demands.

HYSTEROSCOPIC APPLICATION
The development of hysteroscopic techniques has put a versatile tool into the hands of gynaecologists. The reintroduction of CO₂ as a distention medium in hysteroscopy¹,² has greatly improved optical conditions for viewing the uterus, permitting intrauterine manipulation and surgery of various kinds. The use of CO₂ improves access not only to the uterine cavity but also to the oviducts through the tubal uterine orifices.

The intramural course of the human fallopian tube is surrounded by the thick uterine muscle. This part of the female genital system represents the narrowest pathway through which gametes and zygotes must proceed in the normal fertilisation process. Thus, it is
MAJOR CLINICAL PROBLEMS WITH INTRATUBAL DEVICES

Hysteroscopy is an easily applied and effective method when utilised to provide visual access to the uterine cavity. In about 50% of the cases, however, the hysteroscopist will have difficulty in trying to cannulate the uterine tubal orifice. This difficulty may stem from acute deflections of the intramural oviductal path from the main axis of the uterus, a tortuous course in this part of the oviduct, or an extremely thin tubal diameter in the uterine orifice. The probe used for cannulation tends to proceed directly to the tubal orifice when pushed into the uterine cavity through the working channel of the hysteroscope. This operation, normally performed using a paracervical block (P-block) anaesthesia, can be facilitated by the intravenous injection of a small dose of a $B_2$ stimulant drug. These drugs dilate not only the uterine muscular cavity but also the intramural part of the oviduct. The dilation can be visualised during hysteroscopy. The drug, which has a relaxing effect on the uterine muscle, also seems to diminish the muscular tone in the uterine wall surrounding the intramural part of the oviduct. This relaxation can in turn diminish the effects of the convolutions in the intramural part, which can be aggravated by a varying degree of muscular tone in the different uterine muscle layers surrounding the oviduct. A probe with an outer diameter slightly greater than 1 mm could normally be inserted a few centimeters into the tubal lumen from the uterine cavity. In a few cases, adequate dilation of the uterine cavity reveals a little vestibulum formation in the upper end of the uterine horn that must be negotiated before adequate access to the real intramural part of the oviduct can be achieved.

If the tubal cannulation could be performed with a probe of adequate size, no technical obstacles would prevent the hysteroscopist from loading the probe with an intratubal device of a suitable type and depositing this device in the intramural part of the fallopian tube. The P-block is such an intramural tubal device (Fig. 18.1). The occlusive part of the P-block is a hydrogelic body anchored on a nylon 6 skeleton. Prolonged studies in the human have revealed that the oviduct hardly reacts to an intratubal device of this kind. Thus, the feasibility of inserting an intratubal device in the intramural part of the human fallopian tube by hysteroscopy is complemented by the fact that such a device (the P-block) does not provoke any dangerous reaction in human tissue, such as round cell infiltration, giant cell formation, and oedema.

Currently, the main problem researchers face is retaining the intratubal device in position. The anchoring parts of the P-blocks are constantly being refined in an attempt to gain complete retention. Refinements in the size and numbers of the retaining "wings" have been kept to a minimum in new P-block designs.