In recent years, the therapy of nephrolithiasis has been significantly improved due to the development of new technical devices. Advanced compounds, however, create complicated practical problems of general indication for the appropriate method of stone removal. First of all, conservative technical procedures have been expanded, making renal stones and ureter concrements accessible to efficient cystoureteroscopes and allowing their disintegration by ultrasound probe, with simultaneous extraction of residual concrements by means of forceps or Zeiss loop.

Percutaneous nephrectomy (percutaneous litholapaxy) has become a routine operation on account of an ultrasound-guided puncture of the renal ventricular system with subsequent dilatation of the nephrostomy channel by telescope bouginage, under radioscopy. This method permits a fragmentation of pelvic and calyceal stones with an optically controlled application of ultrasound. At the same time, stenoses of the pyeloureteral junction may be dilated.

Since 1982, extracorporeal shock wave therapy (ESWL; Dornier, FRG) has been used in various centers of Western Europe and the United States. This year, new competitive procedures are in the course of development.

The lithotripter of EDAP (France) produces shock waves by piezo-electric transducers arranged inside a spherical dish. The shock waves are focused automatically to the center of the sphere. This is a fundamental difference to other systems, where all the energy of the shock waves originates from a small point (explosion created by electrodes or by lasers). The Lithostar by Siemens (FRG) produces shock waves by means of electromagnetic swiveling of a membrane.

Similar equipments are manufactured in the United States by International Biomedics and Medstone. Their properties are not yet entirely known.

These percutaneous techniques add new dimensions to the therapeutic approach of renal stone disease, replacing the classical lithotomies to a considerable extent.

The complicated bilateral renal stone operations will probably be restricted to highly specialized centers, equipped with an ESWL.

Apparently, 10–20% of renal stone patients are not qualified for ESWL treatment: there may be non-opaque stones, such as urate stones and uric acid stones, certain ureter stones, complicated, infected staghorn stones of the calyceal system or anticoagulated patients. Furthermore, 20–30% of patients treated with ESWL are not definitely stone-free or are likely to develop secondary complications in terms of residual stones, recurrent stones, hemorrhages, infections, etc. Careful metaphylaxis and maybe repeated ESWL treatment have to be taken into account in 30% of stone patients.

Despite its remarkable success, ESWL therapy is a costly matter, a fact which inhibits a general application of the method.

Accurate patient selection and therapeutic planning are mandatory in order to achieve optimal results.
In view of the rapid evolution in the control of renal stone diseases we consider it important to provide our readers with up-to-date information on the therapeutic principles. For this reason, this issue contains an overall review of the problems involved with urolithiasis. Emphasis is focused on critical aspects, fundamental statements on stone formation with pertinent laboratory investigations, comparison of new techniques to classical surgical procedures, metaphylaxis and preventive methods. The new entities are presented and explained by authors who are pioneers in the particular field. We congratulate them for their efforts and achievements. It is remarkable that they are mostly of German-speaking countries.

R. Renal stones are a consequence of general metabolic disorders which have further increased in the past years. We have to do with a disease of our modern world which can again be treated with modern devices. We hope that this issue may give valuable information on the management of one of the most common diseases of our times.

G. Mayor