Diagnostic Radioisotopes

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PREFACE

A number of excellent books on radioactive isotopes have been published. These tend to emphasize the basic principles of radiophysics and radiochemistry. The literature on medical applications of the radioactive isotopes is concerned primarily with treatment and only incidentally with the diagnostic tests.

This book is a review of the diagnostic aspects of radioactive elements and compounds. At first glance, the separation of diagnostic and therapeutic tests may appear to be artificial. Practically, however, their separation has advantages. The detecting equipment ideally suited to either one is poorly adapted to the other.

More important is the fact that the emphasis in radioisotopic therapy is on the biologic effect of radiation, a field in which the roentgenologist is thoroughly familiar. In the diagnostic application of radioisotopes, the emphasis is on precise measurement, which is the province of the clinical pathologist; the radiation is merely the agent used for quantitation, just as color, turbidity and pH are other agents available to the pathologist. At the Mayo Clinic, the diagnostic procedures are carried out in the Section of Clinical Pathology and treatment is given in the Section of Therapeutic Radiology; both rely on the Section of Biophysics for help and advice.

The purpose of this book is to review in detail the physiologic principles and technics of those radioisotopic methods already established as diagnostically useful, as well as those which appear likely to become so. Newer and incompletely tested procedures will be outlined in a more cursory fashion.

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CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

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