of the supporting tissues in order to avoid accidents.

The question of time is more important than the question of energy in the treatment of a differentiated, radioresistant cancer. The energy ought not to provoke a destructive effect. Thanks to a slow chronology and to weak daily doses, the disappearance of the cancer cells seems to follow a cellular evolution resembling the normal evolution. In determining the longer duration of treatment one should aim at the perfect preservation of the supporting tissues so that the evolution effect may become possible.

In conclusion, I would say that it is still absolutely necessary to bear in mind that :

1. The cure of cancer by x-rays is still difficult.
2. The cure of cancer by x-rays is still dangerous.
3. A very small margin exists sometimes between the dose which will determine a cure and the dose which will provoke an injury.
4. The daily examination of the patients is necessary; modification of the normal tissues and of the general condition by x-ray treatment sometimes appears so quickly that it is often necessary to diminish the daily dose or the size of the fields in the course of the treatment.

There exists no fixed method of treatment but a simple clinical treatment for each individual patient and for the special type of tumour.

Reviews

THE ANCESTRY OF THE LONG-LIVED.—By Raymond Pearl and Ruth DeWitt Pearl. The John Hopkins Press, Baltimore. Pp. xiii plus 168. Price, \$3.00

THE problem of long life has intrigued the imagination of man at all times and the tradition of a much longer span of life in the spacious days of the distant past than what the modern man enjoys survives among all nations. Among the Hindus the 'Puranas' set forth that it was a slur on the administration of a ruler if his subjects failed to attain the age of a hundred and twenty. Isaiah states his ideal, 'there shall be no more thence an infant of days nor an old man that hath not filled his days: for the child shall die an hundred years old'.

The investigation of the duration of human life has attained a position of acknowledged importance in every civilized community. There is perhaps nothing so uncertain as a prediction about the probable length of life of an individual but, as Babbage has put it, 'few things are less subject to fluctuation than the duration of life in a multitude of individuals'. The life table, which expresses the community's expectation of life, is however useful mainly from the standpoint of the actuary and the public health worker. The individual is more concerned with knowing those specific factors, if any, which enable a small proportion of his fellow men to attain to very high ages while the great majority fall through, to use the language of the 'Vision of Mirza', the gaps in the bridge of life to be swept away by the great tide beneath.

Professor Raymond Pearl and the biological department of John Hopkins University, Baltimore, have been, for many years, engaged on the investigation of the duration of human life and the latest contribution to the study is 'The Ancestry of the Long-Lived', a book which Professor Pearl has produced in collaboration with Miss Pearl. The biological department has been collecting for over ten years family history records for the purpose of this study and from these collections they selected two groups of individuals, one consisting of nonagenarians and centenarians and the other of shorter-lived persons. These two groups are in no sense random samples and the second group has a mean higher age and less variability in age than in the case of a random sample of the general population. This fact emphasizes that the differences shown between the two groups in this study would have been greater if the sample of longevous persons was compared with a similar one taken from the general population. It is, in consequence, safe to assume that the conclusions reached have been proved as they constitute an underestimate of these differences.

The authors have made a new contribution to the study of the problem by suggesting the total immediate ancestral longevity (tial) as the criterion for investigation. It represents the sum of the number of

years lived by the two parents and the four grandparents of each individual in both groups. They have analysed the contributions to tial from various points of view and have shown the importance of ancestral longevity as a definite factor in determining the length of life of the individual. The average age at death of every ancestor of the longevous group is higher than that of the shorter-lived one. In the case of parents this superiority ranges from 20 to 30 per cent and from 10 to 14 per cent in the case of grandparents. It is, at the same time, interesting to note that, among the nonagenarians and centenarians, about 13.4 per cent came from the matings of parents who were not long-lived (70 years and more). Certain facts relating to the families of longevous persons are equally interesting. The infant and general mortality rates are, in these families, definitely lower than in the case of the population of the country or of the shorter-lived series with which the long-lived persons are compared.

The birth place, race stocks and alcoholic habits of the nonagenarians and centenarians are investigated. The proportion of abstainers among them is significantly greater than in a sample of the general population of Baltimore (by about 11 per cent). But the proportion of moderate drinkers is about 4.1 per cent more than in the general population. About 3.7 per cent survived to extreme old age in spite of being heavy drinkers. On the whole, the evidence points to the moderate use of alcohol as being in no way incompatible with longevity, a position which Professor Pearl has already sustained elsewhere.

Apart from the main theme the book presents a large amount of material of great interest to the student of vital statistics. Thus, at the very beginning, the authors set out a table embodying data for several countries of the world showing the expectation of life at birth, the number of survivors at 92 years of age out of a thousand born alive and the expected mean longevity of survivors at 92. India is one of the countries included. The wastage of life in India, as revealed by these figures, is appalling. The expectation of life at birth is only about 23 years as compared with about 60 years for the most healthy community (Kansas, U. S. A., white population). It is true that the latest actuarial report raises the expectation of life in India to about 27 years but the difference is still enormous. As for the rate of survival till the 92nd year of life, Norway leads and India is again at the bottom, Norway having over one thousand times as many male survivors and over 1,500 times as many female survivors as India.

Again, in another comprehensive table, no. 17, the authors have brought together all the available data relating to the variability in longevity of ancestors.

The book is, on the whole, very stimulating reading though, as has been pointed out in the preface, it is not easy for the general reader. Professor Pearl points out that this is only one stage in the general programme

of investigation of longevity and we look forward to the further studies of the problem.

OPERATIVE SURGERY: THE ABDOMEN AND RECTUM.—By Dr. Martin Kirschner. Authorized translation by I. S. Ravdin, B.S., M.D. 1933. J. B. Lippincott Company, Philadelphia and London. Pp. xiv plus 569, with 395 illustrations (mostly coloured). Obtainable from Butterworth and Company (India), Limited, Calcutta. Price, Rs. 37-8

The first volume of the American edition of Professor Kirschner's *Operative Surgery* was published in 1931. The enthusiastic reception which it received led to impatience for the appearance of the second volume, but the German edition has been delayed by causes which the author explains in his foreword, so that the translator must be congratulated on the speed with which he has completed his heavy task.

The author's foreword is interesting reading, he tells how his transfer from Königsberg to Tübingen, with the consequent replacement of nearly all his assistants, necessitated devoting more time to the practical work of the clinic, to the detriment of his literary work. How a British surgeon envies these continental professors their staff of trained assistants, who work with them for years and carry out all routine without supervision, but how much better for the training of the general practitioner is the British system!

The distinction of attention involved in the planning of a new surgical clinic at Tübingen and the assumption of the university rectorship will be readily understood by many in this country who have to find time for much administrative and academic work in addition to their teaching and clinical duties. German writers cannot keep off politics for long in these days and, accordingly, we find a reference to the (?) struggle of German science and German books for recognition in the world and a pious hope that this book may contribute to the rehabilitation of the German people, sentiments which make one smile in the light of recent events in that country. However that may be, the book will certainly enhance the already high reputation of its author, for it is a fine work worthily produced and the reading of its lucid descriptions is a real pleasure to the surgeon. It represents continental practice at its best, as expounded by one of the masters (the author has since been transferred to Heidelberg), and one is struck, not so much by the differences between British and American practice and that described, by the fact that technique everywhere appears to be standardized and new methods if adopted at all are adopted in all countries.

The present volume deals with the abdomen, including the rectum, but excluding gynaecological, renal and bladder operations. The opening chapter describes methods in general, before, during and after operation. The author's preference for spinal anaesthesia with solutions of low specific gravity for most abdominal operations is in accord with the trend of opinion in England, where the abdominal relaxation thus obtained and the freedom from after-complications is being more and more appreciated. Except that he prefers a mid-line to a paramedian and describes some incisions across the rectus, especially one which he calls the 'fish-hook' for abdomino-thoracic work, his directions are in accord with standard practice. The method given for enlarging the McBurney incision is not the best, to cut across the external oblique greatly weakens the abdominal wall, the translator in a note indicates a better method. In the second chapter all recognized methods of suturing and anastomosing the intestine are minutely described and beautifully illustrated. We learn that the author has had better results and smoother convalescence since he substituted an interrupted Lambert suture for the almost universally-used continuous suture. He uses linen thread for the sero-muscular suture, as catgut, with the exception of the traumatic eyeless needles which are too expensive in

Germany, tears too large holes, as most of us have found. The Petz suture instrument is recommended for passing the through-and-through sutures in all terminal closures and in lateral anastomoses where there is sufficient tissue. There is a description and several figures of this interesting instrument, which enables a practically aseptic intestinal anastomosis to be carried out very rapidly, but we are not told whether the metal clips which the machine inserts ever give trouble afterwards in getting out of the body.

The operations on the various sections of the intestinal canal are then taken up *seriatim*, each preceded by a brief résumé of the surgical anatomy of the region, and here is one of the few features calling for adverse criticism, for the arrangement of the lymph glands draining the stomach is most inadequately described in six lines and the same applies to the lymphatics draining the caecum, sigmoid and rectum, all regions which are frequently affected by malignant disease. The usual method of anaesthesia is by a combination of spinal and splanchnic anaesthesia, the solution of novocaine for the latter being injected into the retro-peritoneal tissues by a high pressure apparatus. The operations described are those practised in England, with the decided preference of the Austro-German school for stomach resection in both gastric and duodenal ulcer cases, in order to remove most of the acid-secreting mucous membrane. Actual or anticipated obstruction at the pylorus is the only condition for which gastro-enterostomy is recommended as the operation of choice. There is a most excellent section on post-operative gastro-jejunal ulcer, with full descriptions of these difficult operations. Attention is drawn to the difficulties in which a very short afferent loop will land the surgeon in the event of a gastro-jejunal ulcer subsequently requiring operation. For this and other reasons the author habitually uses a rather longer loop of jejunum in resection or gastro-jejunosomy than is usual in England and America. Perforation of gastric and duodenal ulcer is dealt with in the next chapter and gastro-enterostomy is advised in all cases after suture; alternative methods are given for dealing with cases where suture is impracticable.

The following chapters deal with operations on the small and large intestine and for peritonitis and obstruction on the usual lines, but the author does not advise crushing the stump of the appendix, at any rate in acute cases. In the article on megacolon it is surprising to find no mention of the huge volume of recent work on abdominal sympathectomy in the treatment of this condition, so the translator supplies a description of the operation of resection of the pre-sacral nerve with an illustration. The chapter of sixty pages on the various methods of extirpation of the rectum for carcinoma is one of the most concise and lucid to be found in any book, the clear illustrations in the general discussion of the different types of operation obviate any confusion in following the actual descriptions.

The last section of the book deals with the biliary system and in an otherwise excellent description of the anatomy of the parts it is surprising to find no mention of Hartmann's pouch, which plays such an important part in the symptomatology of gallstone cases by obstructing the outlet of the gallbladder. The author is opposed to drainage of the common bile duct except in severe infectious jaundice, long-standing cases with severe damage to the liver cells, acute pancreatitis and injury cases. After exploration of the common duct he sutures it completely when the passage to the duodenum is patulous, if there is an obstruction he establishes an internal fistula between the bile duct and the duodenum, even in infected cases and claims that the results are superior to those obtained by the usual practice of external drainage. The sections on biliary fistula, injuries to the bile ducts and operations for recurrence of symptoms are particularly good.

The text throughout is written in the most lucid style and high praise is due to the translator for his excellent rendering, though his habit of interpolating