similar.¹ Moreover, it has been known for several years that these bacterial protein toxins are also structurally similar to ricin and abrin.^{1,2} These plant toxins are, respectively, present in seeds of the castor bean plant (*Ricinus communis*) and the jequirity bean (*Abrus precatorius*), which are not closely related to each other.³ There is compelling evidence that the cytotoxic effect of all these toxins is mediated by an identical mechanism. The toxin molecules consist of an A subunit and one or more B subunits. After binding of the B subunit(s) to a cell surface receptor, the A subunit enters the cell, where it cleaves an adenine residue from ribosomal RNA molecules.^{1,2} The end result is that protein synthesis stops and the affected cells die.

This mechanism almost certainly explains the diarrhoea (with or without rectal bleeding) that follows ingestion of castor or jequirity beans,^{3,4} the colonic inflammation that occurs in *S. dysenteriae* type 1 and *E. coli* O157:H7 infections, and the endothelial cell damage that accompanies the haemolytic uraemic syndrome.⁵ The traditional equation of bacterial haemorrhagic colitis with bacterial invasion of the mucosa is clearly an over simplification. At least in the case of *E. coli* O157:H7 and *S. dysenteriae* type 1 infections, the important issue is the production of a cytotoxic toxin, irrespective of whether the bacteria invade the mucosa.

To date, ricin achieved its greatest notoriety in the 1978 'umbrella murder' of the Bulgarian broadcaster Georgi Markov.⁶ It is intriguing that the systemic effect of ricin in this unfortunate episode can be directly compared with the pathophysiology of bacterial colitis.

Finally, polymerase chain reaction amplification of *E. coli* O157:H7 DNA encoding part of the cytotoxic toxin molecule may facilitate the detection of this bacterium in clinical specimens and in contaminated food.⁷

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Reply

EDITOR,—We appreciate the comments from Dr Heyworth. Further details about toxin structure: function relations may be found in reference 21¹ in the leading article (*Gut* 1994; 35: 872-4). We have been proponents of the critical role of Shiga family toxins in the pathogenesis of bloody diarrhoea for over two decades, a concept that has become more ten-

able since the discovery of the 'non-invasive' toxin producing enterohaemorrhagic *E. coli*, but which is still far from conclusively proved in human clinical disease.

While we pointed out the importance of rapid detection of this group of organisms in our leading article, and urged that a search for enterohaemorrhagic *E. coli* becomes routine when any stool is examined for causes of bloody diarrhoea (an idea recently endorsed and recommended by a Consensus Conference of the American Gastroenterological Association that took place in July 1994), we do not believe that polymerase chain reaction is the best way at present to proceed, as Dr Heyworth suggests. This is because as of today, and for the foreseeable future, most clinical laboratories will not be doing polymerase chain reaction diagnosis at all. Our laboratory has developed monoclonal antibodies and an EIA toxin detection system for direct evaluation of free toxin in patient stools, which has been substantially increased in its sensitivity by Meridian Diagnostics of Cincinnati, Ohio. The preliminary clinical evaluation of this test, which is not restricted to the detection of *E. coli* O157:H7 but detects all serotypes of toxin producing organisms, has been highly favourable. Meridian is carrying out further testing and evaluation to obtain approval by the US Food and Drug Administration. It would seem at this moment that a clinically useful early diagnostic test for enterohaemorrhagic *E. coli* infection, independent of sorbitol fermentation patterns and the potential impact of antimicrobials on the viability of the micro-organisms, is imminent and could become available within a year's time. This test, in contrast with polymerase chain reaction, could be immediately used in all clinical laboratories that conduct routine microbiological, immunological, and serological assays for the diagnosis of infectious enteritis.

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Unethical research relating to *Helicobacter pylori*?

EDITOR,—We are writing concerning the paper by Vincent *et al* (*Gut* 1994; 35: 313-6) regarding the prevalence of *Helicobacter pylori* infection in cohabiting children. In that study, the authors examined the prevalence of *H. pylori* infection among mentally retarded children residing in an institution. *H. pylori* infection was confirmed by gastroscopy. 'Informed consent' was obtained from the families.

We believe that this study raises important ethical questions and concerns. Research involving children always raises the 'ethical' flag and the use of invasive procedures requires a very critical look at the risk versus benefit obtained. In most instances invasive procedures will be deemed to be unjustified in asymptomatic children. The problem is somewhat easier if you are dealing with a population of symptomatic children, but even in that group the motivation and clinical

practices of a group reporting the results of invasive procedures for diagnosis must be questioned.

This study describes endoscopic investigations in asymptomatic mentally retarded children. It is extremely difficult to imagine any benefit that the children could have gained from participation in the study. We are hard pressed to come up with any ethical justification for doing the study. Hammerschmidt and Gross¹ note that when a journal accepts a paper for publication after peer review that 'acceptance constitutes at least a *nihil obstat* [no objection] if not an *imprimatur* [official licence to print]'. Authority of the journal has been placed behind the paper announcing that it has been subjected to scrutiny and has been found to pass muster in terms of basic quality, novelty and potential importance.² There are two questions: firstly, should the study have been done at all and secondly should it have been accepted for publication?

We recognise that these concerns are serious, but they must be considered and considered now as the role of *H. pylori* in the paediatric population is coming under increasing scrutiny.

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- 1 Hammerschmidt DE, Gross AG. Withdrawal of aegis? So what's that? *J Lab Clin Med* 1994; 123: 792-4.

Reply

EDITOR,—Ethical aspects regarding our paper (*Gut* 1994; 35: 313-6) were asked by one of the reviewers, and the necessary answers were given. Study protocol was much more detailed in the first version of our paper, but was shortened afterwards according to the reviewers' recommendations. Finally, only epidemiological and microbiological aspects were described in the published version.

We agree that such a study should not be done only for epidemiological purposes. Our study took place in a clinical context with therapeutic concerns as in the first instance, three cases of *H. pylori* endoscopic gastritis were found in this institution and then treated with clinical ameliorations. These three children had endoscopy because of suspected oesophagitis and macroscopic nodules were seen in the antrum. This led us to perform biopsies, which showed the presence of *H. pylori* gastritis. Specific *H. pylori* treatment was given because we could not distinguish the potential role of the infection in the upper gastrointestinal complaints of these patients.

In severely neurologically impaired children, gastro-oesophageal reflux is common.¹ In our experience, 20-5% of these children suffer from gastro-oesophageal reflux. If not controlled in time, the disease can evolve and lead to severe complications such as oesophageal stricture or Barrett's oesophagus. In these children, gastro-oesophageal reflux is often associated with other disorders (nutritional, metabolic, respiratory, urological, or digestive diseases). It is widely admitted that gastro-oesophageal reflux is difficult to recognise on clinical grounds in mentally retarded

children. Recently, a working group of the European Society of Pediatric Gastroenterology and Nutrition recommended that in these children, 'gastro-oesophageal reflux disease should be investigated systematically, and prolonged oesophageal pH monitoring is the preferred technique. Endoscopy to evaluate the condition of the oesophageal mucosa is indicated in the children with severe gastro-oesophageal reflux disease'.² Endoscopy must be performed to assess the presence of oesophagitis where there exists unexplained failure to thrive, anorexia as well as unexplained seizures or neurological changes.³

With regard to these first three cases of *H pylori* gastritis in the institution, we thought that several questions needed to be considered. What was the risk of spread of infection in this community? Did other children need to be treated? Was there a bacterial source to eliminate? Was there a risk of patient to patient transmission? Was there a risk for nursing staff? Diagnosis was made using serological tests, which are totally specific in children (compared with adults). Endoscopy was obviously not done to confirm the diagnosis of *H pylori* infection but to evaluate the mucosal consequences of the infection. Endoscopy was not performed in non-infected children. We decided to treat only patients presenting with *H pylori* infection associated with histological gastritis, taking into account the absence of specificity of clinical symptoms in these mentally retarded children.

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BOOK REVIEWS

Annual of Gastrointestinal Endoscopy. Edited by P B Cotton, G N J Tytgat, C B Williams. (Pp 192; illustrated; £69.00.) London: Current Sciences, 1994.

It seems as though Mother Nature did a pretty good job when she arranged the year to consist of 365 days. The interval between the really serious pleasures of life (strawberries at Wimbledon, opera at Glyndebourne) is just about right. The international highlight of the gastroenterologist's year has become the Digestive Disease Week meetings in the USA, but what about the equivalent literary pleasure in our speciality?

It is perhaps too early to say whether the *Annual of Gastrointestinal Endoscopy* has established itself in the hearts and minds of gastroenterologists. It has reached its 7th edition, an anniversary that is indelibly associated with pruritus. Is there any sign of familiarity giving way to the tedium of the expected in this 1994 version?

As regular buyers of this annual will know, this is not a volume to quicken the pulse. Somehow the 'Current Science' format gives a dullness to the layout, which undermines any attempt to individuality. The editors – all endoscopic giants – do their best to enliven the book with their enduring enthusiasm for gazing inside the gut. Their commitment extends to their adjectives: Cotton's 'important'; Tytgat's 'superb', 'brilliant'; Williams' 'stupendous' – all descriptive of various reviews in their respective areas of expertise.

There are two interesting articles on endoscopy societies (Fleischer) and endoscopic research (Leung and Leung). Fleischer calls for multicentre studies to allow research studies to be completed in months. His suggestion that the value of endoscopic clips in gastrointestinal bleeding might be identified by collaborative studies in both private practice and hospitals is surely open to serious criticism. Indeed, Leung and Leung identify the difficulty of compensating for variation in operator skill and experience as well as the problem of strict adherence to protocols.

The bulk of the book highlights reports published on endoscopy in 1993 and is comprehensive (although I found surprisingly little on small bowel endoscopy). The editors might reflect whether forthcoming volumes should continue to include laparoscopy – there may well be a 'territorial' dispute concerning the laparoscope but, surely, hernia repair should not be considered part of gastrointestinal endoscopy.

Some readers may, like me, experience a minor decline in morale on learning of the ever expanding gulf between the equipment in their own unit and the range of devices shown here. They would, however, do well to remember that the history of technological innovation is that heroic pioneers may come up with ever more resourceful ideas which may – or may not – stand up to the scrutiny of their colleagues and of time.

IAN FORGACS

Inflammatory bowel disease From Bench to Bedside. Edited by S R Targan, F Shanahan. (Pp 795; illustrated £96.00.) Baltimore, USA: Williams and Wilkins, 1994.

There are already at least two multi-author books describing most aspects of inflammatory bowel disease; why another? The editors point to the pace of basic research, which now enables the pathogenesis of inflammatory bowel disease to be discussed at a more fundamental level as one reason for a new approach. The first one third of the book succeeds brilliantly in this aim. Sixteen well illustrated chapters provide a synthesis of current knowledge on such topics as genetics (358 references), mucosal immune regulation, cytokines, eicosanoids, peptide growth factors, and animal models. Mechanisms of local tissue injury and the systemic response to intestinal injury are well covered. The size of the book militates against rapid publication and few references are more recent than 1991, though a few refer to 1992 and an occasional one to 1993.

What of the remaining 500 pages that deal with inflammatory bowel disease at the bedside and comprise almost two thirds of the total? In their preface, the editors claim that new therapeutic strategies are based on an understanding of pathophysiology and are no longer introduced on an empiric basis. For a few this is true, but what about cyclosporin or methotrexate? We may understand their action(s) but surely we cannot say with confidence why they may reduce inflammation in ulcerative colitis or Crohn's disease. No, in this section we meet all our old friends, aminosalicylates, glucocorticoids, azathioprine or 6-MP, and antibiotics; all of confirmed benefit, but we do not really understand why. There is considerable overlap between the chapters and no new synthesis emerges. A practical and visionary chapter on immunomodulation, and another written by the vice president of an industrial corporation on how potential new drugs are targeted for research and possible development, are the most forward looking. The second particularly is an innovative and critical review, which deals with candidate compounds and takes account of the need to balance probable development costs with the potential size of the market.

There are some unusual and especially interesting chapters in the clinical section. A health education consultant describes patient concerns with insight and intuition. The book has a majority of North American authors and a chapter on health insurance issues throws an interesting light on the American system of financing health care. However, many chapters, good as they are, on such topics as clinical features of disease, diagnosis, complications, fertility and pregnancy, are well dealt with in existing books. There is much overlap and overemphasis on medical as compared with surgical treatment. For example, of the meagre 14 pages devoted to surgical treatment of ulcerative colitis, three pages are spent discussing nutritional therapy, which is the subject of a separate chapter.

The reviewer wishes that the editors had focused on current advances in basic science as related to inflammatory bowel disease, which are the strength of this book. They could well have included also some material from the clinical section such as a good chapter on potential future markers for dysplasia and the futuristic look at possible new medical treatments. If the book had been shorter, the lead time between writing and publication would have been less, and new editions could be produced at comparatively short intervals to keep pace with rapid advance. As it is, the present structure of the book is unwieldy and, though a notable achievement, suffers from the urge to be comprehensive. The result is a rich bill of fare from which most readers will pick and choose, not a balanced and limited menu to be enjoyed from beginning to end.

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