and washing, it was reported, have been successful in the recovery of cells from the upper part of the colon and from the upper part of the small intestine.

Ulcerative Colitis

Drs. H. E. BACON and H. D. TRIMPI, of Philadelphia, reported a series of 302 cases of chronic ulcerative colitis treated since 1940; of these, 67 (22.4%) were operated on. Total colectomy with excision of the rectum was performed in 34 patients, and 29 of these have been completely rehabilitated. Operative mortality was nil. Five carcinomas were discovered in 5 of the 34 excised specimens: of these, four were unsuspected pre-operatively. The authors recommended a two-stage operation, the first consisting of ileostomy and colectomy, and the second of excision of the rectum. Ileostomy was not indicated unless it preceded or accompanied colectomy. In the opinion of the authors, surgery offered the removal of a precancerous bowel, a cure of the disease, and the arresting of secondary arthritic, kidney, liver, and thrombo-embolic disease.

Arterial Transfusion

Dr. SAM F. SEELEY, of Washington, D.C., spoke on arterial transfusion, saying that it had attracted wide interest in the resuscitation of patients in profound shock due to severe blood loss. He did not recommend arterial transfusion in mild or moderate shock, or even in sudden deep shock, provided adequate amounts of blood were given intravenously. In his opinion the most important contribution resulting from studies of pressure transfusions had been the recognition that even greater quantities of blood were necessary for resuscitation than was surmised even during the second world war.

Endometrial Hyperplasia and Carcinoma of the Fundus

Dr. E. R. NOVAK, of Baltimore, spoke about the relationships of endometrial hyperplasia and adenocarcinoma of the fundus. Endometrial hyperplasia was normally produced by unopposed oestrogen stimulation and could similarly be produced by exogenous oestrogens. This histological entity might be found in either pre-menopausal or post-menopausal patients, and atypical hyperactive variants occurred at any age. Hyperactive forms which were indistinguishable from true fundal adenocarcinoma might follow prolonged oestrogen therapy. Oestrogen was considered as a possible carcinogenic factor, and, since this steroid could definitely lead to extremely proliferative forms of hyperplasia, the relationship between oestrogen, hyperplasia, and adenocarcinoma had to be considered. Dr. Novak then discussed the difference between pre-menopausal and post-menopausal hyperplasia, with particular reference to its premalignant role and its treatment.

Bilateral Adrenalectomy for Severe Hypertension

Dr. R. F. BOWERS, of Memphis, reported the results of adrenalectomy in 28 patients with severe hypertension. He left a small piece of viable adrenal tissue on the left side. Pre-operative therapy with cortisone and deoxycortone acetate was given for 44 hours prior to the second-stage operation. Eight deaths occurred, all in very severe cases. The blood pressure fell to normal in all but two of the survivors, and all 20 of the survivors showed signs of mild hypoadrenalism. Maintenance dosage of cortisone ranged from nil in three cases to 60 mg. daily in one case.

The Mechanical Heart in Human Surgery

Dr. F. D. DODRILL, of Detroit, described a mechanical heart, which had been used to by-pass either the right side or left side of the human heart. The right-sided substitution was done for congenital pulmonary stenosis. A left-sided by-pass of the human heart had also been successfully carried out during the operative treatment of mitral valve disease.

Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

Intrinsic Factor Activity in Solid Material

SIR,—Further to our article (*Journal*, February 28, p. 467) we wish to announce the isolation of a solid material with high intrinsic factor activity. In this case the source was a concentrate derived from pig gastric mucosa kindly supplied by Dr. T. Jukes of the Lederle Laboratories Division. We understand that this material produced good clinical and reticulocyte responses when given orally in a daily dosage of 40 mg., together with 10 µg. of vitamin B₁₂ for ten days. Lower dosages have also been effective. The electrophoresis technique was applied to a solution of the material in buffer, and the latter was subsequently removed from the appropriate fraction. Absorption of radioactive vitamin B₁₂ after oral administration was used as a test of biological activity.¹ This was carried out in collaboration with Dr. F. T. Farmer and Mr. C. Clayton.

In one patient 2 mg. of the new material produced better absorption of vitamin B₁₂ than was produced by either 25 mg. or 100 mg. of the original concentrate. A second aliquot of the same concentrate fractionated in the same way yielded material which was definitely active in a dose of 4 mg. and possibly active in a dose of 2 mg. The material is homogeneous when subject to electrophoresis at pH 6.4, but is decomposed at pH 8.6 in barbitone buffer. Further evidence has been obtained that intrinsic factor is mucoprotein in nature, and most of its amino-acid and carbohydrate constituents have been identified. It is interesting to note that lysine, histidine, and tyrosine are apparently absent.

Tests are proceeding upon solid material isolated in a similar manner from human gastric juice.—We are, etc.,

A. L. LATNER.

C. C. UNGLEY.

Newcastle-upon-Tyne.

REFERENCE

Welch, A. D., et al. (1952). *Fed. Proc.*, 11, 308.

Tropical Diseases in Britain

SIR,—I too have read with great interest and not a little nostalgia the annotation on this subject (*Journal*, May 16, p. 1096). I should be the first to agree with the writer upon his insistence that a microscopic examination and the discovery of malaria parasites in the blood is an essential preliminary to treatment of an attack of this fever. Early and accurate diagnosis and early and effective treatment should be the watchword for all forms of malaria; but this, alas, proves sometimes to be the counsel of perfection. As one who has seen and practised both sides from the laboratory and clinical angle for some 40 years I feel that I should qualify this statement. As Dr. W. Melville Arnott has written (*Journal*, May 30, p. 1219), the academical standpoint assumes a much more serious aspect in the case of subtertian malaria (*P. falciparum*), and it is always within the bounds of possibility that this parasite may crop up from time to time in travellers arriving by air or sea from one of the endemic areas of the disease. I can call to mind many instances where there has been no time to undertake microscopic diagnosis, and it has been necessary to act as in an emergency and inject quinine in order to save life.

I remember particularly a young man who was lying in a coma in a London hotel, having just arrived by air from South Africa. His main complaint had been acute tonsillitis, which was thought to account for the high fever, and for which appropriate treatment had been applied, when he suddenly became comatose. Intravenous quinine given without delay undoubtedly saved his life, but the diagnosis was later confirmed in the laboratory from blood films taken before quinine therapy was undertaken. One is comforted by the idea that even if the diagnosis had not been correct no real harm would have been done.

There have been others, too, in which no parasites were found in thick and thin blood films at the time of examination, but where the balance of evidence was in favour of subtertian malaria. It is undoubtedly true that occasionally, especially in the most acute and dramatic cases, the ring forms of the parasite may be particularly difficult to find in blood preparations. I have seen relapses of benign tertian malaria as well in which the same obtained but where the character of the rigor, the subsequent hot and sweating stages, and the enlarged painful spleen could leave no doubt in the clinician's mind of the correctness of the clinical diagnosis. Sometimes the discovery of malarial pigment in the mononuclear cells is confirmatory evidence.

In quartan malaria I have in mind two cases in which, although the fever and quartan periodicity were suggestive, thin blood films were searched for hours with a negative result. Finally, in one instance, however, after 2½ hours' scrutiny a single quartan parasite hove into view in a thick blood film. Intramuscular injections of quinine in these instances clinched the diagnosis by abolishing the fever when other antimalarial drugs, including mepacrine ("atebrin") and proguanil, had failed.

The same principle similarly obtains in amoebic dysentery. It is curious that here, too, in the most acute cases with profuse diarrhoea *E. histolytica* in its active stages may be most difficult to demonstrate. I can recollect a fulminating case of this disease of an acuteness and toxicity rarely encountered, but when the proctoscope was brought into use, and scrapings made from the bleeding mucosa, these parasites were present in large numbers and the diagnosis became obvious. Another instance I can call to mind was that of an officer who when playing tennis at Wimbledon was attacked with acute diarrhoea with blood and mucus. Such was the character of the stools and the severity of the illness that he was regarded as suffering from ulcerative colitis till some three weeks later emetine was injected as an experiment and at this point the attack began to subside. Sigmoidoscopy was then performed, and active amoebae were present in the exudate in large numbers, in spite of the fact that the stools had been examined microscopically many times with a negative result. It then transpired that as a boy of 11, some 15 years previously, he had contracted amoebiasis in Mauritius.

Another difficulty crops up in intestinal amoebiasis where the lesions in the large intestine are typical of amoebic ulceration but no actual evidence of the parasite can be secured. I have had experience of many of these—some of which had been subjected to treatment for ulcerative colitis on previous occasions. Here surely is a basis for experimental therapy and for the verification of the "proof of the pudding is in the eating." If the patient recovers, and the ulcerations heal on emetine and emetine bismuthous iodide therapy, then the original clinical diagnosis must have been correct.

In these somewhat exceptional instances I am always reminded of the analogy of the rabbit. How many of us have seen their very characteristic burrows and other evidences of occupation, without obtaining so much as a glimpse of the owner, but it would be a foolish man who could swear that the occupant of the burrow is not somewhere or other ensconced inside, and this little parable is peculiarly applicable to *E. histolytica*.—I am, etc.,

London, W.1.

PHILIP MANSON-BAHR.

Primary Red-cell Aplasia

SIR,—We were interested in the medical memorandum from Dr. Michael Donnelly (*Journal*, February 21, p. 439) and the letter from Drs. A. G. V. Aldridge and P. Kidd (*Journal*, March 28, p. 729) regarding cases of red-cell aplasia in infants.

We have described a case of this condition fully in a male adult African (*J. Path. Bact.*, 1953, in press). He was referred to us for anaemia, and when we saw him was gravely ill. He said he had been getting progressively weaker for about nine weeks, and complained of general body pains, weakness, and dyspnoea. His heart and lungs were normal, there was no oedema, the spleen and liver were not enlarged, there were no petechiae, there was no icterus and no sign of riboflavin deficiency. There was histamine-fast achlorhydria. He gave no history of having been exposed to toxic substances. He had been taking mepacrine, but only in the usual doses, for suspected malaria. Blood examination on admission showed: red cells 1,320,000 per c.mm.; haemoglobin 2.3 g.%; mean corpuscular volume 54 μ^3 ; reticulocytes nil; white blood cells 5,650 per c.mm.; platelets 700,000. A sternal puncture done on admission showed complete red-cell aplasia, with normal white and megakaryocytic elements.

He was kept under observation in hospital for eight days, during which period there was no reticulocytosis. He was then

given 4 mg. daily of riboflavin for 14 days and 2 mg. daily for nine days. Seven days after the first dose of riboflavin reticulocytes began to appear in the peripheral blood (0.5%) and reached 27% on the twelfth day after the commencement of treatment. The reticulocyte response was therefore specific and reached the expected level. The red cells and haemoglobin doubled themselves in 21 days. The patient was discharged after six weeks in hospital with a blood count of 4,290,000 and 11 g.% of haemoglobin. Eight months after commencement of treatment the patient is perfectly well and has a red cell count of 5.5 million per c.mm. and a haemoglobin of 14.5 g.%. A sternal puncture done five days after the commencement of treatment showed 5% early erythroblasts, no late erythroblasts, and no normoblasts. A third marrow biopsy 12 days after the start of treatment showed 15% early erythroblasts, 27% late erythroblasts, and 34% normoblasts. Two more marrow punctures were done 23 and 30 days respectively after the commencement of treatment, and revealed that the early and late erythroblasts had decreased in number and the marrow had become predominantly normoblastic.

In view of the fact that so far all cases of true red cell aplasia have proved fatal, with the exception of one of Heilmeyer's cases and the two mentioned above, we think that our findings, if confirmed, may have a useful place in the treatment of this grave condition.—We are, etc.,

HENRY FOY.

ATHENA KONDI.

Nairobi, Kenya.

Who Was Geminus?

SIR,—To the many with a dilettantish interest in medical history the articles in your May 30 issue must have given special pleasure, although some statements may have caused surprise—for example, that the 1511 Act governing medical practice "did not apply to medical graduates of Oxford and Cambridge" (p. 1179). Were there any home-produced university medical graduates in 1511? By that date Aberdeen alone had given academic recognition to medicine, but it was merely studied as one subject in the general course, and no separate medical degrees were awarded at that time.

Some of the information about Geminus (p. 1187) seems to go further than the ascertained facts warrant. What is the evidence that he was "almost certainly a surgeon"? An individual (or individuals) with the name of Thomas Geminus (Gemynous, Gemynus, Geminie, Gemyne, etc.) is mentioned in various contemporary records—as a surgeon in the list of Edward VI's disbursements (1547–52), in the *Annals of the Royal College of Physicians* (1555), in the *Register of the Stationers' Company* (1555) as a stranger (foreigner) who was fined for calling a brother of the company a false knave and later as a benefactor to the "Brydewell," but he is not mentioned in the *Annals of the Barber Surgeons*. In addition the cognomen is associated with an excellent engraver, a printer, a cartographer, an instrument maker, and a putative author of books on anatomy. If one man possessed such widespread skill and erudition he must have been versatile indeed, and, although it is possible there was only one Geminus, an unusual name does not necessarily imply the same individual.

It is doubtful if the Geminus associated with the *Compendiosa totius Anatomie delineatio* was a medical man. Nicholas Udall in his "Address to the Reader" refers to him as a "workman," an unusual designation even in those days for a surgeon, anatomist, and author. When Vesalius complained of the plagiarism of his work by "that Englishman," he was not referring to Geminus, as your contributor infers, but almost certainly to Dr. John Caius, who had once lived and studied with Vesalius at Padua and who had returned to England in 1544, the year after the *Fabrica* and *Epitome* were first published. The Latin text used in the first two editions (1545, 1552) of the *Compendiosa* is a résumé of the *Fabrica*—it is the Vesalian *Epitome*—but in the third edition (1553), which purported to be a translation by Udall from the original Latin into English, the text actually used was a modified version of Vicary's (1548) *The Anatomie of the Bodie of Man* (itself largely pirated from de Mondeville's work), rearranged to follow the order of Mundinus's *Anathomia* (1316), which may be regarded as the first manual of practical anatomy, whereas Vesalius's *Fabrica* is a systematic treatise.

As Vicary raised no objections, while Vesalius did, we must assume that the former knew and approved of this use of his recently published work; but it is difficult to understand why the help of Nicholas Udall, *quondam* headmaster of Eton, prebendary at Windsor, and author of *Ralph Roister Doister*, was reputedly required to translate a book already in the vernacular (perhaps he translated only the plate legends which are copied