and anatomy related to the ear, nose, and throat. The scope of the examination remains as at present, but emphasis will be given to the practical application of knowledge of the basic sciences to clinical practice.

This primary examination will, as before, have full reciprocity with the other Royal Colleges of Surgeons.—I am, etc.,

R. B. WRIGHT,

President,
Royal College of Physicians and
Surgeons of Glasgow.

Glasgow.

** We regret the mistake in our leader. The correct facts about the Part I M.R.C.P. examination were given in the College's statement printed in the same issue at p. 502.—Ed., *B.M.J.*

SIR,—In the leading article on "Anatomy for Surgeons" (22 February, p. 462) is discussed the topography of the Primary F.R.C.S.

The article states, "The anatomical part of this examination is far different from the terror of former years, especially as half the examiners are practising surgeons." But surely this latter fact is exaggerated. I well remember in my Primary in 1910 being examined by the late James Sherren, known to us as the Skipper, and very much in active practice. Personally I would have much preferred to be questioned by Sir Arthur Keith.—I am, etc.,

Hallatrow,
Near Bristol.

DUNCAN WOOD.

Vitamin P

SIR,—I read with interest your informative review of the present state of knowledge available about the clinical value of vitamin P (25 January, p. 235). My report of a pilot clinical double blind trial is quoted¹ and also the comments of Haeger,² who repeated the study.

In most reports dealing with the use of flavonoids the lack of objective methods of assessment is very apparent, as is pointed out in your review. This lack of suitable objective indices in the assessment of chronic venous insufficiency has bedevilled many reports, including my own and that of Haeger. At the Third International Congress of Phlebologie³ I reported on my experience in the treatment of 5,000 limbs by compression sclerotherapy and made a plea for standardization of terminology, regardless of methods of therapy, to overcome the present confusion in the presentation of data on venous insufficiency.

At the Fifth European Conference of Microcirculation⁴ I reported my provisional findings of the influence Paroven (troxerutin) had on peripheral blood flow in two small groups of patients: one with chronic arterial disease, the other with chronic venous insufficiency. Significant increases in arterial blood flow have been found, measured by strain-gauge plethysmography, during chronic administration of the drug. Furthermore, these increases are reversed to initial levels on withdrawal of the drug. As Paroven is not a vasodilating agent, and it has apparently no significant influence on blood pressure or heart rate, it would seem that the influence of Paroven is on the peripheral resistance vessels. In those subjects depending largely on collateral arterial blood supply in their

legs not very large changes in blood flow volume were found, but the rate of delivery of the blood volume was significantly increased—that is, the maximum blood flow to time ratio was favourably changed. These preliminary findings have since been confirmed by further investigation.

I am at present assessing peripheral resistance in these patients. It is hoped that the results of these objective methods of assessment will lead to further studies, and eventually the uncovering of the active principle in the flavonoid group.—I am, etc.,

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SIR,—Having read the Today's Drugs article (25 January, p. 235) on flavonoids (vitamin P), I would like to report the following.

A male patient, aged 52, developed polycythaemia rubra vera in 1961 and was treated with radioactive phosphorus and venesection. Owing to this condition he had sustained a right retinal thrombosis causing practically total blindness and also a cerebral thrombosis resulting in monoplegia of the left arm. On 11 November 1966 he was admitted to another hospital complaining of pain and discoloration of the left great toe. On examination there was severe cyanosis of the left great and fourth toes with good peripheral pulses. The cardiovascular system was normal and the blood pressure 160/100 mm. Hg. Hb was 146%; P.C.V. 69%; E.S.R. 1 mm./hr.; W.B.C. 13,100/cu.mm.; platelets 3,600/cu.mm.; urea and electrolytes normal. Blood uric acid was 5.7 mg./100 ml.

The patient was treated with venesection and three pints (1.7 l.) were taken off. His haemoglobin fell to 126%. On 16 November he was given 5 m. curies of radioactive phosphorus intravenously, and was discharged a day later. On 20 April 1967 the left fourth toe became gangrenous and infected owing to thrombosis of the fourth digital artery, and the possibilities of lumbar sympathectomy or amputation were considered. Despite local treatment with gentian violet and ampicillin systemically the condition did not improve. On 1 May he was put on Paroven, one 250-mg. tablet four times a day, and Sofra tulle dressings. Within two weeks the condition had improved considerably and six weeks later healing was complete.

The result reported here and the experiences of Sørensen and Hansen (personal communication) suggest that further studies of Paroven in small peripheral arterial occlusive conditions would appear to be justified.—I am, etc.,

London S.W.17.

E. D. M. TOD.

Hypophysectomy in Breast Cancer

SIR,—With regard to your recent leading article on the treatment of advanced breast carcinoma (1 February, p. 265) I would just like to point out a most recent advance in the technique of pituitary ablation.

In the article no mention was made of the effect of ultrasound on the pituitary. In

my experience the effect is immediate and represents the least disturbing and simplest approach to this form of treatment. As you so rightly point out, the approach to an E.N.T. surgeon is quite simple through the sphenoid sinus, and produces little upset in the patient. Having reached the sphenoid sinus it is equally a simple matter to expose the dura over the pituitary, and through this the ultrasound is applied direct. You will note that there is thus no necessity for opening the dura. What could be simpler? This procedure has been carried out at Leicester, and I have also seen the effects of it on the Continent.—I am, etc.,

Leicester.

JOHN C. JENKINS.

Trichomoniasis and Gonorrhoea

SIR,—It is generally known that *Trichomonas vaginalis* is often associated with gonococcal vaginitis in females, but its true incidence is unknown, especially in males with gonococcal urethritis. *Trichomonas vaginalis* is a common cause of profuse purulent vaginal discharge with marked vulvitis in females. It is easily diagnosed from a fresh high vaginal smear using dark ground microscopy. In males its diagnosis is difficult and at best unsatisfactory. This does not mean that they are immune from infestation with *Trichomonas vaginalis*, which frequently gives rise to only minimal symptoms and signs, and is too often treated as "non-specific" urethritis with antibiotics without any response. In fact, males act as carriers, unless specific treatment has been given. As *Trichomonas vaginalis* is almost always transmitted sexually, the common practice is to treat both partners and carriers simultaneously. In females the treatment is routine when *Trichomonas vaginalis* is thought to be the cause of a vaginal discharge. Regrettably, this is all too frequently practised without either clinical or microscopic examination to eliminate the possible associated gonococcal infection.

An attempt was made to find out the relative incidence of these infections in the female patients attending the West London Hospital Clinic for the years 1965–8. Of 1,466 patients with gonorrhoea whose discharges were cultured and examined microscopically 620 (42%) also had trichomoniasis. It is fair to assume that the relative incidence in male patients with acute gonorrhoea is roughly the same. In order to prevent the spread and continuing rise in the incidence of trichomoniasis, it is recommended that at least a course of metronidazole should be given for post-treatment gonococcal urethritis in male patients with symptoms not responding to standard antibiotics, and perhaps even to those without symptoms when their female contacts are unknown and not available for examination. This regimen has been tried with the expected successful response at the West London Hospital Clinic.

What is of greater importance is the fact that out of 1,335 patients who presented with trichomoniasis 620 (46%) had associated gonorrhoea. Patients with trichomoniasis should therefore be carefully screened for the presence of possible associated gonorrhoea.

With the continuing rise in the incidence of these infections their correct management is of utmost importance. It is suggested that

the high association between trichomoniasis and gonorrhoea should be borne in mind in the management and treatment of these infections when the presence of either cannot be discounted totally, and when symptoms persist or reinfection occurs in the partner concerned.

I am grateful to Dr. J. L. Fluker for his advice, and for making this report of cases under his care possible.

—I am, etc.,

W. TSAO.

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Farmer's Lung

SIR,—This condition is now well recognized in many areas as a cause of disabling industrial disease in agricultural workers, but it may be less well known that it can affect other members of the farming community. In the last two months we have seen three farmers' wives with this condition. They were all about 30 years of age, and two did nothing more than feed a few calves, but one did help her husband in farm duties, and was regarded by her husband as a "good worker."

In view of the long-term effects of this condition, early recognition by the family doctor is of supreme importance. An acute or subacute respiratory illness with dyspnoea of a non-wheezy type, particularly if accompanied by cyanosis and exceptional tachycardia, should arouse suspicion and blood should be sent for *Micropolyspora faeni* (*T. polyspora*) precipitins. Chest examination may show some areas of fine rales, and the x-ray a fine "groundglass" mottling in some or all of the lung fields, but these findings may be relatively transient. Ventilatory tests show a marked reduction in the forced vital capacity, but there is usually a smaller drop in F.E.V.₁.

Steroid therapy usually leads to dramatic clinical improvement, and we believe it should be initiated as soon as the diagnosis is made. Ideally dosage and duration of treatment should be decided in conjunction with the respiratory laboratory, but if this is not available 15 mg. of prednisone daily should be given for two weeks, and then a slow reduction controlled by clinical findings for a further six weeks at least. It is essential that contact with the suspected hay dust should be broken absolutely, and the value of an agricultural mask in preventing further attacks is very doubtful.—We are, etc.,

G. E. ADKINS.

J. T. SMYTH.

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Exeter, Devon.

Vitamin B₁₂, Serum Folate, and Hypochromic Anaemia

SIR,—The presence of hypersegmented neutrophils in the blood films of many patients with hypochromic anaemia prompted us to ascertain the serum folate and vitamin B₁₂ concentration in patients referred to this laboratory by general practitioners. Altogether 161 patients (128 women and 35 men) presented with hypochromic anaemia. The serum folate¹ was determined in every case, and the serum vitamin B₁₂ concentration (z strain of *Euglena gracilis*) in

156 cases. For comparison with this group, serum vitamin levels were determined also in 101 patients who were not anaemic and had also been referred by their general practitioners. These controls were matched as far as possible according to age and sex with cases in the first group.

TABLE I.—Serum Folate Levels. (Normal Range 3.5 to 12 ng./ml.)

	Hypochromic Anaemia	Normal Controls
Number of cases . . .	161	101
Range of serum folate (ng./ml.) . . .	0.8 to 12.7	2.5 to 11.9
Mean folate (ng./ml.) . . .	4.9	5.9
Standard deviation (ng./ml.) . . .	2.0	1.9
Standard error of the difference (ng./ml.) . . .	0.27	
No. of cases with low folate:		
0.8 to 1.4 ng./ml. . .	3	0
1.4 to 2.4 ng./ml. . .	15	0
2.5 to 3.4 ng./ml. . .	22	6

As shown in Table I, subnormal levels were found in 25% of patients with hypochromic anaemia and in 6% of controls ($P<0.01$). The mean folate of 4.9 ng./ml. in the hypochromic anaemias was significantly lower than that of 5.9 ng./ml. in the controls.

TABLE II.—Serum Vitamin B₁₂ Concentrations. (Normal 150 to 800 pg./ml.)

	Hypochromic Anaemia	Normal Controls
No. of cases . . .	156	100
Range of serum vitamin B ₁₂ (pg./ml.) . . .	20 to 728	161 to 840
Mean vitamin B ₁₂ (pg./ml.) . . .	327	381
Standard deviation (pg./ml.) . . .	162	127
Standard error of the difference (pg./ml.) . . .	19.3	
No. of cases with low vitamin B ₁₂ :		
20 to 99 pg./ml. . .	10	0
100 to 149 pg./ml. . .	11	0

Likewise there was a significant difference between the mean serum vitamin B₁₂ concentration of the anaemic patients, which was 327 pg./ml., and that of the controls at 381 pg./ml. (Table II). All the controls had a normal serum vitamin B₁₂, while 10 patients with hypochromic anaemia (6.4%) presented with a level of less than 100 pg./ml., and in a further 11 it ranged from 100 to 149 pg./ml. ($P<0.01$).

Hypersegmentation of neutrophils was observed in the blood films of 35 patients with hypochromic anaemia, but only 25 of these had subnormal serum folate or B₁₂ levels; conversely, no hypersegmented neutrophils could be found in the blood of 36 anaemic patients with abnormally low serum B₁₂ or folate levels, nor in any of the control cases.

This preliminary study has thus confirmed that the signs of hypochromic anaemia frequently mask an underlying vitamin B₁₂ or folate deficiency. It has also shown that, while the presence of hypersegmented neutrophils in stained blood films is a useful pointer in such cases, it is by no means a reliable substitute for serum vitamin assays.—We are, etc.,

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Transfusion and Perforation

SIR,—In reference to the recent articles concerning colonic perforation and exchange transfusion (9 November, pp. 345 and 349) one could dispute the argument that the umbilical venous catheter is a source of the problem of itself. Where the catheter ends up during exchanges is a moot point, as we do not normally perform radiological studies of this. The catheter may be in radicals of the portal system, ductus venosus, hepatic veins, inferior vena cava, or even in any of the cardiac chambers. One certainly notes pressure changes in the system when a child cries during exchange transfusion, and one would doubt if the slow injection of blood during an exchange in itself can lead to unphysiological pressure changes in the system.

The point which intrigues me in relation to the technique of exchange is the type of blood used. In Sheffield citrated blood is supplied for exchange transfusion, and I note that in the paper by Drs. R. Orme and Sheila M. Eades in two instances they used calcium supplements during the exchange, which suggests the use of citrated blood. We have known for a long time the metabolic problems of citrated blood—the initial low pH and the undesirable effects that this may produce during an exchange transfusion. It seems to me a reasonable proposition, worthy of pursuit, that the type of blood used during the exchange may have had some bearing on any vascular lesions which may have led to perforation of the gut.

I would be interested to know the type of blood used in the cases recorded by the Sheffield and Devon workers.—I am, etc.,

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Preperitoneal Prosthetic Herniorrhaphy

SIR,—I am grateful to Mr. N. O. K. Gibbon (18 January, p. 187) and Mr. J. M. Buchanan (25 January, p. 256) for replying to my letter briefly describing preperitoneal prosthetic herniorrhaphy (28 December, p. 832) and for their comments.

However, I hope that Mr. Gibbon does not imply that there is no room for further thought and innovation on the common problem of treatment of groin hernia. Excellent though Mr. Gibbon's treatment results are, other accounts of operation follow-up quote recurrent rates of 5–10% for indirect and up to 25% for direct inguinal herniae,¹ and it is these figures which I consider justification for rethinking the surgical treatment of groin hernia. Mr. Gibbon's reference to extended operations is surely not applicable to preperitoneal prosthetic herniorrhaphy, as this is simple in concept and easy in execution. Although I do not advocate its general adoption at this stage I can assure him that no hazards or untoward complications have been encountered in its application. It takes no longer to perform than a standard operation and for bilateral cases is materially less time-consuming. The technique is applicable without variation to inguinal hernia both indirect and direct, femoral hernia, recurrent hernia, and hernia *en glissade*; it is particularly advantageous for the recurrent case,