Letters to the Editor

It has also been reported that with the use of capillary viscometers blood is slightly thixotropic, but we doubt whether this could be demonstrated in a rotational viscometer provided the blood was well mixed beforehand.

P DAVENPORT

S ROATH

South Laboratory and Pathology Block,
Southampton General Hospital,
Tremona Road,
Southampton SO9 4XY

Professor Stuart and Dr Kenny reply as follows:

It has been reported on several occasions that viscosity measurements on human blood are dependent on both time and rate of shear.¹⁻⁵ Using a Contraves Low-Shear 30 viscometer, we have exposed normal blood to increasing shear rate over the range 0-1.0 mPas. The resulting viscosity tracing (or rheogram) showed a progressive decrease in viscosity as shear rate increased. When the process was reversed, so that the same specimen was exposed to progressively decreasing shear, the reverse tracing did not follow the original curve but showed a lower viscosity at all shear rates, indicating an alteration in the characteristics of the blood. This phenomenon, probably a consequence of red cell disaggregation, is consistent and reproducible and demonstrates that viscosity is time and shear-rate dependent under these experimental conditions of low shear.

The variable shear-stress instrument used by Davenport and Roath works on a different principle and will require to be evaluated in its own right. We estimate, however, that the shear-rate range produced by the shear stresses stated is much higher than our own so that rouleaux would be dispersed. Few rheologists would support the suggestion that a viscometer should first be operated at high shear in order to 'mix' blood before readings at low shear are made. As the authors seem to have demonstrated, this technique will disperse rouleaux for several minutes. Yet the effect of plasma proteins in causing rouleaux formation at low shear is probably one of the most important determinants of hyperviscosity in patients with vascular disease.

Rheologists are, of course, aware that temperature is a critical determinant of viscosity and must be rigorously controlled. Adequate mixing, but not shearing, of blood before testing is also essential, and

even when a well-mixed specimen has been placed in the viscometer cup, the instrument should begin rotation within 60 seconds to avoid false-low readings at low shear rates as a consequence of red cell settling (Inglis, Carson, and Stuart, unpublished).

J STUART

MW KENNY

Department of Haematology,
Medical School,
University of Birmingham,
Birmingham B15 2TJ

References

- ¹ Dintenfass L. Thixotropy of blood at very low rates of shear. *Kolloidzeitschrift* 1962;180:160.
- ² Dintenfass L. Thixotropy of blood and proneness to thrombus formation. *Circ Res* 1962;11:233-9.
- ³ Dintenfass L. Study in thixotropy of concentrated pigment suspensions. Part II. Thixotropic recovery and non-equilibria states. *Rheol Acta* 1962;2: 187-202.
- ⁴ Huang CR, Fabisiak W. Thixotropic parameters of whole human blood. In: Copley AL, Okamoto S, eds. *Hemorheology and Thrombosis. Proceedings of the United States-Japan Cooperative Seminar, Kobe, Japan*. New York: Pergamon Press, 1976;1-8.
- ⁵ Dintenfass L. *Rheology of Blood in Diagnostic and Preventive Medicine*. London: Butterworths, 1976.

Book reviews

Clinics in Haematology. Vol 9. No. 2. 'The Porphyrrias.' Ed A Goldberg and MR Moore. (Pp 226; illustrated; £9.) WB Saunders. 1980.

The porphyrias are a fascinating group of disorders, which impose themselves on all clinical specialties. This monograph is particularly timely because during the past few years the enzyme defect has been demonstrated in at least three of these diseases, our understanding of the pathogenesis of the clinical syndromes has been significantly increased, and there have been useful methodological developments.

In the first chapter Dr Moore takes us gently but thoroughly through the biosynthesis of porphyrins. The acute and cutaneous porphyrias are fully discussed in the subsequent two chapters. Variegate porphyria is reviewed by Dr Kramer, and recent studies on the neurotoxicity of amino-laevulinic acid are described. The unique experience of Professor Ippen's group with congenital porphyria include new clinical observations. An interesting chapter by Dr With on porphyrias in animals and an important contribution on the clinical chemistry of the porphyrias by Professor Elder are followed by a section on drugs and hepatic porphyrias and a discussion of abnormalities of porphyrin metabolism in diseases other than the porphyrias.

This is an excellent monograph; the contributors reflect Who's Who of the porphyrias, and even George III would be pleased! Perhaps the use of consistent nomenclature throughout the various chapters would have been helpful but nevertheless it is a highly recommended book.

TJ PETERS

Medical Information Systems. Ralph R Grams. (Pp 464; 114 Figs + 40 charts; \$49.50.) The Humana Press Inc. 1979.

Readers of this book will have much to interest them concerning the definition and analysis of the problems that face a clinical pathology department introducing a computer into its management. Nevertheless since the system described in this

book was implemented several years ago it is likely that the suggested solutions to the problems will be ones which would not be implemented today.

Particularly valuable are the flow charts in the appendices, which outline very clearly the detailed logic on which depends the orderly flow of specimens and data which we take for granted in a well-run laboratory.

The frank discussion of unsatisfactory decisions is helpful, as is the description of how the problems were overcome. The need to take account of the people working in the laboratory and their response to the new system come through the text very strongly.

The author has chosen to use original material as illustrations. This has the virtue of verisimilitude but there is the penalty of lack of clarity.

There is a move at present to purchase 'turn-key' systems rather than to design totally new laboratory systems. Armed with the knowledge contained in this book a prospective purchaser would be able to make a better informed assessment.

MG RINSLER

Human Plasma Proteins. Their Investigation in Pathological Conditions. JW Keyser. (Pp x + 320; illustrated; £18.50.) John Wiley & Sons. 1979.

This book deals with the pathophysiology of the plasma proteins and the role of their measurement in clinical practice. For a small book attempting to cover a large subject it is both comprehensive and readable and reflects the many years of experience the author has had in this field.

The approach is disease-orientated and does not attempt to enter into great detail on the biochemistry of the plasma proteins. Because of this it is a useful addition to the other texts already in existence which are of a more biochemical nature. Unfortunately the high standard is not uniformly maintained in all chapters. This is particularly true of fields such as lipoprotein metabolism and acute phase proteins where recent developments have somewhat changed our views. This is, however, more than compensated for by many other excellent chapters.

A useful and comprehensive appendix has been included on laboratory methods for plasma protein investigation and, while this is brief, it does nonetheless

provide a useful starting point for the laboratory worker. Good instructions are provided for most basic laboratory methods with very adequate bibliography.

This book will undoubtedly be of considerable value to chemical pathologists and clinical biochemists concerned with providing a clinical service in plasma protein measurements. It will also provide a useful source of reference to other pathologists wishing to take an interest in this important field. It is not a book for the expert, but for those wishing to gain an appreciation of this field of clinical pathology it is excellent.

JT WHICHER

Tumors of the Ovary and Maldeveloped Gonads. RE Scully. AFIP Atlas of Tumor Pathology. 2nd Series. Fascicle 16. (Pp 413; Figs. 383; Plates 16; US \$16.)

Robert Scully's reputation as a master of ovarian pathology can only be still further enhanced by this volume in the second series of the *AFIP Atlas of Tumor Pathology*. The WHO classification of ovarian tumours is used as a skeleton which is elegantly fleshed out by a lucid text which is permeated throughout with evidence of the author's vast experience of his topic. Further embellishment is provided by nearly 400 black-and-white figures, which are nearly all of high quality, and by 16 colour plates, some of which have a rather garish quality to their tints. A number of electron micrographs are included among the figures, but these are used sparingly to illustrate specific points. The references, though not over-abundant, are carefully chosen.

This book should be on the work-bench of all histopathologists who have to deal with ovarian tumours.

H FOX

Handling Chemical Carcinogens in the Laboratory—Problems of Safety. Eds R Montesano, H Bartsch, E Boyland, G Della Porta, L Fishbein, RA Griesemer, AB Swan, and L Tomatis. (Pp 32; Sw Fr 12.) WHO. 1979.

This booklet offers authoritative advice to staff of chemical and biological research laboratories on safety measures to be taken in using chemical carcinogens. Chapter I seeks to define the problem in operational terms. The point is well made

that it is scarcely possible to produce recommendations to cover the whole spectrum of circumstances in which chemical carcinogens may be used: the establishment of safety measures should rest on a balanced judgement by the investigator in charge of all the relevant risk factors. Chapter II sets out a code of practice intended to avoid exposure of workers to carcinogens and contamination of the laboratory, equipment, and environment. The principles of sound laboratory design, personal protection, manipulative techniques, monitoring and identification of hazard areas, and emergency procedures are outlined. Chapter III considers the storage, dispensing, and disposal of carcinogenic waste and highlights some very real practical difficulties. Chapter IV reviews the responsibilities of different grades of laboratory staff and the proper administrative and surveillance procedures. The booklet concludes by identifying areas where additional research into safety procedures is needed. A bibliography of 50 general references and 24 IARC publications is appended.

Much of this information is already available in one or other code of practice. Nevertheless, it has been skilfully drawn together and laced with good common sense. The booklet should be compulsory reading for all safety officers. Its advice should be heeded by all who work with chemical carcinogens.

SS BROWN

Notice

3rd Annual Dermatopathology Colloquium

This meeting will take place at Guy's Hospital, London SE1 on 11 July 1981 immediately preceding the International Dermatopathology Symposium. Further information regarding applications for attendance and details relating to submission of abstracts may be obtained from Dr DM MacDonald, Department of Dermatology, Guy's Hospital, London SE1 9RT.