

the buffer reservoirs. The agar plate and the reservoirs are contained within a box to prevent excessive evaporation during electrophoresis.

After electrophoresis the agar plate is immersed in the benzidine stain, which reveals the position of the haemoglobin. Fig. 1, which is a photograph of a portion of a plate, shows that haptoglobin-bound haemoglobin moves slightly towards the anode, and free haemoglobin moves towards the cathode. The binding capacity of the serum haptoglobin in this figure lies between 0.6 and 0.8 mg. of haemoglobin per 1 ml. of serum. Serum to which no haemoglobin had been added shows a small amount of haptoglobin-bound haemoglobin, probably from haemolysis *in vitro*. A solution of 0.01% carboxyhaemoglobin demonstrates that the method is sufficiently sensitive to

detect the haemoglobin concentration increments between adjacent cups.

## SUMMARY

A rapid electrophoretic method for the estimation of serum haptoglobin is described. Less than 0.2 ml. of serum is required and results are available in less than two hours.

## REFERENCES

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## The January 1961 Issue

### THE JANUARY 1961 ISSUE CONTAINS THE FOLLOWING PAPERS

#### Editorial

Hospital Infection Yesterday and Today MARY BARBER

A Survey of Some Problems in Sterilization ROBERT KNOX

Control of Infection in Hospital Wards ROBERT BLOWERS

Chemical Disinfection in the Prevention of Infection in Hospital W. A. GILLESPIE

The Cleaning of Ward Floors and the Bacteriological Study of Floor-cleaning Machines J. G. BATE

Sterilization by Dry Heat. E. M. DARMADY, K. E. A. HUGHES, J. D. JONES, D. PRINCE, and WINIFRED TUKE

Prevention of Infection in Operating Theatres R. A. SHOOTER and R. E. O. WILLIAMS

The Surgeon's Autoclave J. W. HOWIE

Radiation Sterilization E. M. DARMADY, K. B. A. HUGHES, MARGARET M. BURT, BARBARA M. FREEMAN, and D. B. POWELL

Sterilization by Ethylene Oxide C. KELSEY

Sterilization by Gas Ovens E. A. K. PATRICK, R. H. WHARTON, K. PRENTIS, and A. G. SIGNY

Disinfection of Bedpans E. M. DARMADY, K. E. A. HUGHES, J. D. JONES, D. PRINCE, and PATRICIA VERDON

The Organization of Central Sterile Supply Departments J. D. WELCH

Preserving the Sterility of Surgical Dressings Wrapped in Paper and Other Materials V. G. ALDER and F. I. ALDER

Disinfection of Hospital Blankets with Synthetic Phenolic Compounds I. M. LARKIN, E. Y. BRIDSON, W. S. M. GRIEVE, and J. W. GIBSON

Skin Disinfection E. J. L. LOWBURY

Efficiency Tests on a Series of Common Skin Antiseptics under Ward Conditions P. E. VERDON

A Survey of Staphylococci Isolated in Hospital Practice J. BRADLEY and M. J. MEYNELL

Staphylococci in Septic Fingers O. WESLEY-JAMES and V. G. ALDER

Book Reviews

Copies are still available and may be obtained from the PUBLISHING MANAGER,  
 BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, W.C.1, price 17s. 6d.

merely to stop the drug and wait to see what happens. The one exception seems to be haemorrhage into the eye, but such complications are extremely rare. Selection of the patients before admitting them for long-term anticoagulant therapy should reduce the possibility of dangerous bleeding.

The last question by Dr. A. G. Signy (London) was, 'Would the Panel advise in cases of sensitization to an oral anticoagulant a short period of dose

reduction before changing over to a newer drug; under what conditions would the Panel change the drug?' The Panel agreed that sensitization was uncommon and was usually shown by a rash or, occasionally, diarrhoea. Most people switched directly and in comparable doses. With regard to phenindione, some of the sensitivity may be associated with the benzene ring in this preparation.

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## Broadsheets prepared by the Association of Clinical Pathologists

The following broadsheets (new series) are published by the Association of Clinical Pathologists. They may be obtained from Dr. R. B. H. Tierney, Pathological Laboratory, Boutport Street, Barnstaple, N. Devon, price 1s. each.

- 1 The Disc Technique for the Rapid Determination of Bacterial Sensitivity to Antibiotics. 1952. R. W. FAIRBROTHER.
- 2 Determination of Sensitivity of *M. tuberculosis* to Streptomycin. 1952. R. L. VOLLUM.
- 3 The Detection of Barbiturates in Blood, Cerebrospinal Fluid, Urine, and Stomach Contents. 1953. L. C. NICKOLLS.
- 4 The Estimation of Carbon Monoxide in Blood. 1953. D. A. STANLEY.
- 5 The Identification of Reducing Substances in Urine by Partition Chromatography on Paper. 1953. G. B. MANNING.
- 6 The Paul-Bunnell Test. 1954. R. H. A. SWAIN.
- 7 The Papanicolaou Technique for the Detection of Malignant Cells in Sputum. 1955. F. HAMPSON.
- 8 Investigation of Haemorrhagic States, with Special Reference to Defects of Coagulation of the Blood. 1955. E. K. BLACKBURN.
- 9 Daily Fat Balance. 1956. A. C. FRAZER.
- 10 Mycological Techniques: (1) Collection of Specimens. 1956. R. W. RIDDELL.
- 11 Mycological Techniques: (2) Cultural Isolation. 1956. R. W. RIDDELL.
- 12 Techniques for Demonstrating L.E. Cells. 1956. J. V. DACIE and L. S. SACKER.
- 13 The Identification of Serotypes of *Escherichia coli* Associated with Infantile Gastro-enteritis. 1956. JOAN TAYLOR.
- 14 The Determination of Serum Iron and Serum Unsaturated Iron-binding Capacity. 1956. ARTHUR JORDAN.
- 15 The Estimation of Faecal 'Urobilinogen'. 1957. C. H. GRAY.
- 16 Preservation of Pathological Museum Specimens. 1957. L. W. PROGER.
- 17 Cultural Diagnosis of Whooping-cough. 1957. B. W. LACEY.
- 18 The Rose-Waaler Test. 1957. C. L. GREENBURY.
- 19 The Laboratory Diagnosis of Fibrinogen Deficiency. 1958. R. M. HARDISTY.
- 20 Investigation of Porphyrin/Porphyruria. 1958. C. RIMINGTON.
- 21 Quantitative Determination of Porphobilinogen and Porphyrins in Urine and Faeces. 1958. C. RIMINGTON.
- 22 Investigation of Haemolytic Anaemia. 1959. J. G. SELWYN.
- 23 The Dried Disc Technique for Bacterial Sensitivity Tests. 1959. R. W. FAIRBROTHER and J. C. SHERRIS.
- 24 Safe Handling of Radioactive Tissues in the Laboratory and Post-mortem Room. 1959. R. C. CURRAN.
- 25 Titration of Antistreptolysin O. 1959. H. GOODER and R. E. O. WILLIAMS.
- 26 The Periodic Acid-Schiff Reaction. 1959. A. G. E. PEARSE.
- 27 The Laboratory Detection of Abnormal Haemoglobins. 1960. H. LEHMANN.

The second edition shows some rearrangement and incorporates some advances in knowledge. The development of transfusion is related, and the workings of a regional transfusion centre are described. The difficulties and dangers of transfusion are stressed, but no more of the theory or technique of transfusion is described than is necessary to aid the resident's clinical judgment.

This pamphlet, together with the Ministry of Health publication 'Notes on Transfusion', will greatly facilitate the task of the blood transfusion officer.

R. H. B. PROTHEROE

**MICROCHEMICAL METHODS FOR BLOOD ANALYSIS.** By Wendell T. Caraway. (Pp. xi + 109. 42s.) Oxford: Blackwell Scientific Publications; Springfield, Illinois: Charles C. Thomas. 1960.

This book sets out to present a system of micro-analysis based on the use of the Coleman Jr. spectrophotometer and flame photometer.

It is written as a biochemistry cookery book with the assumption that the cook has not yet even learnt how to light the gas.

Several macro-methods are described and others are somewhat out-dated macro-methods adapted for micro-analysis.

This book would have its place as a free issue with a Coleman Jr. spectrophotometer but can hardly be recommended at 42s.

W. P. STAMM

#### INTERNATIONAL CONGRESS OF NEUROLOGY

The Seventh International Congress of Neurology will be held in Rome from 10 to 15 September 1961, under the auspices of the World Neurologic Federation and of the National Institute for Nervous Diseases and Blindness of Bethesda.

Full details are available from the President of the Congress, Prof. Mario Gozzano, or from the Secretary General, Dr. Giovanni Alemà, Viale Università 30, Rome.

## The maturation and senescence of erythrocytes

A symposium was held at the Institute of Chemical Physiology, Humboldt University, Berlin, on the occasion of the 250th anniversary of the Charité Hospital and the 150th anniversary of the University.

Amongst the subjects discussed were:—

**THE CYTOCHEMISTRY OF RED CELL MATURATION**, contributed by Bo Thorell (Stockholm), who used micro-spectrophotometry to quantitate and localize intracellular nucleic acids, proteins, haem, and iron, in single marrow cells as well as the loci of respiratory enzymes and coenzymes in certain other cells.

**ENZYME CHANGES IN RED CELL MATURATION, SENESCENCE, AND CONSERVATION** was discussed by S. Rapoport. He asserted that reticulocyte maturation involved interlinked and serially governed metabolic and structural processes, sharing many pathways with senescence but differing from the changes accompanying storage. The key process in maturation is the decline in respiratory activity caused by protein inhibitors which act on iron flavoproteids, cytochromoxidases, and SH-containing hexokinases and pyrophosphatases. Perhaps the limiting factor for all survival *in vitro* and *in vivo* is the maintenance of adenosine triphosphate levels.

T. A. J. Frankerd (London) stressed the importance of changes in the stroma and lipids in these processes, and C. W. Löhr and A. P. Waller (Marburg) reported on enzyme changes in red cells during senescence *in vitro*.

**BLOOD PRESERVATION AND ADENINE NUCLEOTIDES** was discussed by H. Yoshikawa (Tokyo), who showed that survival of stored red cells is greatly prolonged by adding adenine to acid synthesis of adenosine triphosphate and inosine for preferential oxidation, sparing the heavy A.T.P. consumption of the glucose cycle. The steps adenine to A.T.P. were delineated and the influence of A.T.P. on red cell morphology was shown. Dr. Fischer (Frankfurt) reported work leading to similar results.

H. Lehmann (London) covered recent advances in the haemoglobins, their chemistry, characterization, identification, distribution, and frequency. He spoke of experiments in hybridization conducted *in vitro* and postulated an interrelationship between the prevalence of abnormal haemoglobins and certain diseases in African communities. The sickle cell haemoglobin confers some resistance to malaria in early childhood.

The proceedings will be published shortly and a further symposium is planned for two or three years hence.