

JOURNAL OF THE INSTITUTE OF PETROLEUM

~~24774 oz.~~

Honorary Editor :

A. E. DUNSTAN, D.Sc., F.I.C., F.C.S., F.Inst.Pet.

Honorary Associate Editor :

F. H. GARNER, Ph.D., M.Sc., F.I.C., F.Inst.Pet.

VOLUME TWENTY-SEVEN

1941

Published by
THE INSTITUTE OF PETROLEUM,

War Address:

THE UNIVERSITY, EDGBASTON, BIRMINGHAM, 15.



P.102/41/E

P.101/39/H

THE INSTITUTE OF PETROLEUM

(Founded 1913 as The Institution of Petroleum Technologists)

Past-Presidents :

- 1914-1916 SIR BOVERTON REDWOOD, Bart., D.Sc., F.R.S.E. (died 1919.)
1916-1917 THE RT. HON. LORD CADMAN OF SILVERDALE, G.C.M.G., Hon. LL.D., D.Sc., D.Eng., M.Inst.M.M. (died 1941.)
1917-1919 THE RT. HON. LORD GREENWAY OF STANBRIDGE EARLS. (died 1934.)
1919-1921 SIR FREDERICK W. BLACK, K.C.B., B.A.(Lond.). (died 1930.)
1921-1923 PROF. JOHN SAMUEL STRAFFORD BRAME, C.B.E., F.I.C., F.C.S.
1923-1925 HERBERT BARRINGER, M.Inst.C.E., M.I.Mech.E., M.I.N.A., M.Inst.Mar.Eng. (died 1932.)
1925-1927 SIR THOMAS H. HOLLAND, K.C.S.I., K.C.I.E., Hon. LL.D., D.Sc., F.R.S.
1927-1929 ALFRED C. ADAMS.
1929-1931 A. E. DUNSTAN, D.Sc., F.I.C., F.C.S.
1931-1933 JAMES KEWLEY, M.A., F.I.C., F.C.S., M.I.Chem.E.
1933-1935 T. DEWHURST, A.R.C.Sc., F.G.S.
1935-1937 THE RT. HON. LORD CADMAN OF SILVERDALE, G.C.M.G., Hon. LL.D., D.Sc., D.Eng., M.Inst.M.M. (died 1941.)
1937-1939 LT.COL. S. J. M. AULD, O.B.E., M.C., D.Sc.

COUNCIL

1941

President :

Prof. A. W. NASH, M.Sc., M.I.Mech.E.

Past-Presidents :

ALFRED C. ADAMS.

Lt.-Col. S. J. M. AULD, O.B.E., M.C., D.Sc.

Prof. J. S. S. BRAME, C.B.E., F.I.C.

T. DEWHURST, A.R.C.S.

A. E. DUNSTAN, D.Sc., F.I.C.

Sir THOMAS H. HOLLAND, K.C.S.I., K.C.I.E.,
D.Sc., F.R.S.

J. KEWLEY, M.A., F.I.C.

Vice-Presidents :

ASHLEY CARTER, A.M.I.Mech.E.

C. DALLEY, M.I.E.E.

F. H. GARNER, Ph.D., M.Sc., F.I.C.

J. McCONNELL SANDERS, F.I.C.

F. B. THOLE, D.Sc., F.I.C.

Members of Council :

G. H. COXON.

R. CRICHTON, J.P.

A. FRANK DABELL, M.I.Mech.E.

E. A. EVANS, M.I.A.E.

E. B. EVANS, M.Sc., F.I.C., Ph.D.

W. E. GOODAY, A.R.S.M., D.I.C.

A. C. HARTLEY, O.B.E., F.C.G.I., M.Inst.C.E.

Prof. V. C. ILLING, M.A.

J. S. JACKSON, B.Sc., F.I.C.

J. A. ORIEL, M.A., B.Sc.

E. R. REDGROVE, Ph.D., B.Sc.

C. A. P. SOUTHWELL, M.C., B.Sc.

H. C. TETT, B.Sc., D.I.C.

A. BEEBY THOMPSON, O.B.E.

A. WADE, D.Sc., A.R.C.S.^m

W. J. WILSON, F.I.C., F.C.G.I.

C. W. WOOD, F.I.C.

Honorary Treasurer :

THE RT. HON. LORD PLENDER, G.B.E.

Honorary Secretary:

ARTHUR W. EASTLAKE, A.M.I.Mech.E.

Chairmen of Branches :

Burma Branch :

Iranian Branch :

Northern Branch : J. CUTHILL.

Rumanian Branch :

Scottish Branch : R. CRICHTON.

South Wales Branch : A. E. HOLLEY.

Trinidad Branch : L. A. BUSHE.

United States Branch : Dr. G. EGLOFF.

Students' Section : Birmingham Branch : A. L. CUDE.

London Branch :

LIST OF OFFICERS

Honorary Secretary :
ARTHUR W. EASTLAKE, M.I.Min.E., A.M.I.Mech.E.

Honorary Treasurer :
THE RT. HON. LORD PLENDER OF SUNDRIDGE,
G.B.E.

Honorary Editor :
A. E. DUNSTAN, D.Sc., F.I.C., F.C.S.

Honorary Associate Editor :
F. H. GARNER, Ph.D., M.Sc., F.I.C.

Secretary :
S. J. ASTBURY, M.A.

Assistant Secretary and Librarian :
Miss B. M. H. TRIPP, B.Sc.

Solicitors : Messrs. ASHURST, MORRIS, CRISP & Co.

Auditors : Messrs. PRICE, WATERHOUSE & Co.

Bankers : WESTMINSTER BANK LIMITED, 21 Lombard Street, London, E.C.3, and 34 Henrietta Street, London, W.C.2.

Offices : c/o Dept. of Oil Engineering and Refining,
The University, Edgbaston, Birmingham, 15.

Telephone : Selly Oak 1181 (Ext. 5).
Telegraphic Address : Instpetech, Birmingham.

COMMITTEES OF COUNCIL

(Revised May 1940 for wartime conditions.)

The President and the Honorary Secretary are ex-officio Members of all Committees.

Benevolent Fund Committee :

Dr. A. E. DUNSTAN (Chairman).
ASHLEY CARTER.
C. DALLEY.
E. A. EVANS.

Prof. V. C. ILLING.
C. E. R. SAMS.
J. McCONNELL SANDERS.

Chemical Standardization Committee :

Dr. F. H. GARNER (Chairman).
Dr. A. E. DUNSTAN.
E. A. EVANS.
Dr. E. B. EVANS.
J. S. JACKSON.
J. KEWLEY.

J. A. ORIEL.
Dr. E. R. REDGROVE.
J. McCONNELL SANDERS.
Dr. PERCY E. SPIELMANN.
Dr. F. B. THOLE.
W. J. WILSON.

Election Committee :

J. McCONNELL SANDERS (Chairman).
ASHLEY CARTER.
G. H. COXON.
Dr. E. B. EVANS.
Dr. F. H. GARNER
A. C. HARTLEY.

Prof. V. C. ILLING.
J. S. JACKSON.
C. A. P. SOUTHWELL.
H. C. TETT.
Dr. F. B. THOLE.
CECIL W. WOOD.

Engineering Standardization Committee :

A. C. HARTLEY (Chairman).
ASHLEY CARTER.
A. F. DABELL.
C. DALLEY.

B. J. ELLIS.
Dr. E. R. REDGROVE.
A. BEEBY THOMPSON.

Finance Committee :

C. DALLEY (Chairman).

ASHLEY CARTER (Deputy Chairman).

G. H. COXON.

A. F. DABELL.

J. S. JACKSON.

J. KEWLEY.

J. A. ORIEL.

Dr. E. R. REDGROVE.

W. J. WILSON.

Publication Committee :

Dr. A. E. DUNSTAN (Chairman).

Capt. W. H. CADMAN.

G. H. COXON.

E. A. EVANS.

Dr. E. B. EVANS.

Dr. F. H. GARNER.

A. C. HARTLEY.

Prof. V. C. ILLING.

J. S. JACKSON.

J. KEWLEY.

J. McCONNELL SANDERS.

C. A. P. SOUTHWELL.

H. C. TETT.

Dr. F. B. THOLE.

CECIL W. WOOD.

Publication (Executive) Committee :

The Honorary Editor.

The Honorary Associate Editor.

The Secretary.

The Assistant Secretary.

HON. SECRETARIES OF BRANCHES

Northern Branch : E. J. DUNSTAN, Manchester Oil Refinery Ltd., Twining Road, Barton, Manchester.

Scottish Branch : Prof. W. M. CUMMING, Royal Technical College, Glasgow.

South Wales Branch : E. THORNTON, National Oil Refineries, Llandarcy, Glam.

Trinidad Branch : H. C. H. THOMAS, Trinidad Leaseholds Ltd., Point-a-Pierre, Trinidad

CONTENTS.

	PAGE
Studies on the Separation of Paraffin Waxes. Part III.—The Sweating of Oil-Free Waxes. M. F. Sawyer, Ph.D., A.M.Inst.Pet., T. G. Hunter, D.Sc., F.Inst.Pet., and A. W. Nash, M.Sc., F.Inst.Pet.	1
The Improvement of Mixed Cresols for Inhibitor Purposes; The Use of Mesitol as a Gum Inhibitor. T. Kennedy, M.Sc., Ph.D., A.I.C.	15
The Effect of Alkyl Substitution on the Efficiency of Phenols as Inhibitors of Gum Formation in Petroleum Products. T. Kennedy, M.Sc., Ph.D., A.I.C.	19
A Technical Study of Transvaal Torbanite. S. L. Neppe, B.Sc. (Eng.), A.I.C., A.M.Inst.Pet.	31
Estimation of Unsaturated Hydrocarbons by Bromine Addition. S. J. Green, B.Sc., Stud.Inst.Pet.	66
The Use of Mineral Oils as Mosquito Larvicides. H. D. Lord, Ph.D., F.I.C.	73
The Investigation of High-Boiling Petroleum Oils by Adsorption Analysis. B. C. Allibone	94
Science, National and International and the Basis of Co-operation. A. V. Hill, M.P.	109
Ollett Tube Cleaner. E. A. Evans	118
Octane Rating Relationships of Aliphatic, Alicyclic, Mononuclear Aromatic Hydrocarbons, Alcohols, Ethers, and Ketones. Gustav Egloff and P. M. Van Arsdell	121
Institute Meeting	139
Studies on the Separation of Paraffin Waxes. Part IV.—The Sweating of Wax-Oil Mixtures. M. F. Sawyer, Ph.D., A.M.Inst.Pet., T. G. Hunter, D.Sc., F.Inst.Pet., and A. W. Nash, M.Sc., F.Inst.Pet.	143
Obituary. Carleton Ellis	155
The Effect of Crooked Wells on Exploitation. H. C. H. Thomas, M.A., A.R.S.M.	157
Extreme-Pressure Addition Agents. E. A. Evans and J. S. Elliott	165
Extension of the Octane Scale above 1000.N.	188
Tentative Method for Knock-Rating of Experimental Aviation Fuels of over 1000.N. "17° Motor Method"	191
Calibration of C.F.R. Reference Fuels	192
Petroleum as a Raw Material. A. W. Nash, M.Sc., M.I.Mech.E., M.I.Chem.E.	195
Institute Luncheon	214
Viscosities of Homologous Series at Equal Temperatures. A. H. Nissan, Ph.D., and A. E. Dunstan, D.Sc.	222
Revised Standard Method of Test for Distillation of Liquid Asphaltic Bitumen (Tentative)	226
Calibration of Tetraethyl Lead in Standard Reference Fuel C.12 by C.F.R. Motor Method	230
Twenty-Seventh Annual Report	233
Obituary. William Henry Howe	252
The Late Lord Cadman	253
Molar Volume Relationships among Aliphatic Hydrocarbons at their Boiling Points. Gustav Egloff and Robert C. Kuder	260
The Rate of Reaction in the System Mineral Oil-Oxygen. A Contribution to the Knowledge of Oil Stability. D. J. W. Kreulen, F.Inst.Pet., and D. Th. J. Ter Horst	275

	PAGE
The Blending Octane Numbers of Furan and Furfuryl Alcohol. Hugh B. Nisbet, D.Sc., Ph.D., F.I.C., F.R.S.E.	293
The Viscosity of Russian and Rumanian Lubricating Oils at High Pressure. R. B. Dow, J. S. McCartney, and C. E. Fink	301
Obituary. Andrew Campbell	310
Soil Classification and its Bearing on Soil Stabilization. A. H. D. Markwick	313
The Use of Bitumen in Soil Stabilization. H. Gardner, B.Sc., A.I.C.	329
Asphaltic Bitumen Group Meeting	344
Means of Improving Ignition Quality of Diesel Fuels. E. M. Nygaard, G. S. Crandall, and H. G. Berger	348
Hydrocarbon Solvents from Petroleum and their Industrial Applications. F. N. Harrap, M.Sc., and E. B. Evans, Ph.D., M.Sc.	369
Expansion of Crude Petroleum Products and Allied Substances	402
Obituary. William MacNab	418
Instrument for Determining the Direction of Dip in Cores Taken in Inclined Holes. C. F. C. Moore, A.R.S.M., and N. F. Brown	419
A Preliminary Study of the Chemical Constitution of Kerogen. A. L. Down, Ph.D., A.R.C.S., D.I.C., and G. W. Himus, Ph.D., M.I.Chem.E., A.R.C.S.	426
The Composition of the Ash of Tasmanian Spore Shale. G. W. Himus and S. Rudrakanchana	446
Obituary. W. R. Ormandy	448
Author Index	449
Subject Index	451