

JOURNAL OF THE INSTITUTE OF PETROLEUM

~~2477/1202~~

Honorary Editor :

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

Honorary Associate Editor :

F. H. GARNER, O.B.E., Ph.D., F.R.I.C., F.Inst.Pet.

VOLUME THIRTY-ONE

1945

Published by
THE INSTITUTE OF PETROLEUM
MANSON HOUSE,
26, PORTLAND PLACE,
LONDON, W. I.

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.R.I.C., F.C.S.
1923-1925 HERBERT BARRINGER, M.Inst.C.E., M.I.MechE., 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.R.I.C., F.C.S.
1931-1933 JAMES KEWLEY, M.A., F.R.I.C., F.C.S., M.I.Chem.E.
1933-1935 T. DEWHURST, A.R.C.S., 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.
1939-1942 PROF. A. W. NASH, M.Sc., M.I.MechE. (died 1942.)
1942-1944 C. DALLEY, M.I.E.E. (died 1944.)



P. 102/45/I

COUNCIL

1945

President :

F. H. GARNER, O.B.E., Ph.D., F.R.I.C., M.I.A.E., M.I.Chem.E.

Past-Presidents :

ALFRED C. ADAMS.

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

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

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

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

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

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

Vice-Presidents :

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

G. H. COXON.

A. C. HARTLEY, C.B.E., F.C.G.I.

V. C. ILLING, M.A., F.R.S.

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

J. A. ORIEL, M.C., M.A.

Members of Council :

M. A. L. BANKS, B.Sc.

R. CRICHTON, J.P.

E. J. DUNSTAN, M.Sc.

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

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

J. E. HASLAM.

H. HYAMS.

R. I. LEWIS, B.Sc.

J. S. PARKER, M.A., B.Sc.

D. S. PAUL, B.Sc., F.R.I.C.

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

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

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

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

A. BEEBY THOMPSON, O.B.E.

G. H. THORNLEY, M.Sc.

E. THORNTON, B.Sc., F.R.I.C.

R. B. TWEED.

A. WADE, D.Sc., A.B.C.S.

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

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

Chairmen of Branches :

Burma Branch :

Iranian Branch :

Northern Branch : J. E. HASLAM.

Rumanian Branch :

Scottish Branch : R. CRICHTON.

South Wales Branch : R. B. SOUTHALL.

Stanlow Branch : H. E. F. PRACY.

Trinidad Branch : H. C. H. THOMAS.

United States Branch : Dr. G. EGLOFF.

Students' Section : Birmingham Branch : G. K. ASHPORTH.

London Branch :

LIST OF OFFICERS

Joint Honorary Secretaries :

ARTHUR W. EASTLAKE, M.I.Min.E., A.M.I.Mech.E.
ASHLEY CARTER, A.M.I.Mech.E.

Honorary Editor :

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

Honorary Associate Editor :

F. H. GARNER, O.B.E., Ph.D., M.Sc., F.R.I.C.

Secretary :

F. H. COE.

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

Auditors : Messrs. PRICE WATERHOUSE & Co.

Bankers : WESTMINSTER BANK LIMITED, 115 Old Brompton Road, London, S.W.7.

Offices : 26, Portland Place, W.1.

Telephone : LANGHAM 2250.

Telegraphic Address : Instpetech, Westdo, London.

COMMITTEES OF COUNCIL

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

Awards Committee.

E. A. EVANS (Chairman).
S. J. M. AULD.
A. E. DUNSTAN.

A. C. HARTLEY.
D. S. PAUL.
F. B. THOLE.

Benevolent Fund Committee.

A. E. DUNSTAN (Chairman).
ASHLEY CARTER.

E. A. EVANS.
V. C. ILLING.

Branches Committee.

J. A. ORIEL (Chairman).
R. CRICHTON.
V. C. ILLING.

R. I. LEWIS.
C. A. P. SOUTHWELL.
W. J. WILSON.

Election Committee.

J. S. JACKSON (Chairman).
S. J. M. AULD.
M. A. L. BANKS.
E. B. EVANS.
A. C. HARTLEY.
V. C. ILLING.

J. A. ORIEL.
E. R. REDGROVE.
C. A. P. SOUTHWELL.
H. C. TETT.
CECIL W. WOOD.

Finance Committee.

G. H. COXON (Chairman).
ASHLEY CARTER.
J. KEWLEY.
E. R. REDGROVE.

R. R. TWEED.
W. J. WILSON.
C. W. WOOD.

House Committee.

C. A. P. SOUTHWELL (Chairman).
S. J. M. AULD.
E. J. DUNSTAN.

H. HYAMS.
J. S. JACKSON.
H. C. TETT.

Publication Committee.

A. E. DUNSTAN (Chairman).
ASHLEY CARTER.
G. EGLOFF.
E. A. EVANS.
E. B. EVANS.
A. C. HARTLEY.
H. HYAMS.
V. C. ILLING.

J. S. JACKSON.
J. A. ORIEL.
C. A. P. SOUTHWELL.
F. B. THOLE.
A. BEEBY THOMPSON.
G. H. THORNLEY.
E. THORNTON.
CECIL W. WOOD.

Co-opted Members.

W. H. CADMAN.
D. A. HOWES.

G. SELL.

Research Committee.

H. C. TETT (Chairman).
S. J. M. AULD.
G. H. COXON.
E. A. EVANS.
V. C. ILLING.

J. S. JACKSON.
J. A. ORIEL.
C. A. P. SOUTHWELL.
H. C. TETT.

Co-opted Members.

S. M. BLAIR.
D. A. HOWES.
E. R. PALMER.

L. PATRICK.
J. D. F. WEST.

Special (By-Laws) Committee.

T. DEWHURST (Chairman).
ASHLEY CARTER.
G. H. COXON.
J. S. JACKSON.

J. KEWLEY.
F. B. THOLE.
C. W. WOOD.

Standardization Committee.

F. H. GARNER (Chairman).
G. H. COXON.
A. E. DUNSTAN.
E. A. EVANS.
E. B. EVANS.
H. HYAMS.
J. S. JACKSON.

H. F. JONES.
J. A. ORIEL.
E. R. REDGROVE.
F. B. THOLE.
G. H. THORNLEY.
W. J. WILSON.

Co-opted Members.

W. E. J. BROOM.
D. A. HOWES.
C. D. LAWRENCE.
J. MASON.
K. E. W. RIDLER.

A. R. STARK.
T. R. THOMAS.
C. S. WINDEBANK.
W. F. K. WYNNE-JONES.

Honorary Members.

R. P. ANDERSON.
T. A. BOYD.
E. W. DEAN

T. G. DELBRIDGE.
J. G. DETWILER.
F. D. TUEMMLER.

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.

Stanlow Branch : J. C. WOOD-MALLOCK, Lobitos Oilfields Ltd., Ellesmere Port, Cheshire.

Trinidad Branch : F. MORTON, Trinidad Leaseholds Ltd., Point-à-Pierre, Trinidad.

Students' Section : *Birmingham Branch* : D. S. PETTY

CONTENTS.

	PAGE
Classification of Crude Oils. K. G. Margosches	1
The Microbiological Aspects of Gasoline Inhibitors. Fraser H. Allen	9
The Analysis of Liquefiable Hydrocarbons by Distillation. Liquefied Gases Panel	16
Classification of Abstracts. C. L. Gilbert	23
Obituary. Sir John J. Fox	26
Petroleum in England. C. A. P. Southwell	27
Measurement of Oil Depths. Measurement of Oil Depths Panel	40
The Extreme Pressure Lubricating Properties of some Chlorinated Compounds as Assessed by the Four-Ball Machine. W. Davey	73
Improvements in Lubricating Greases. M. W. Webber	89
Obituary. Thomas Midgley	103
Improved Accuracy of C.F.R. Motor Method Test for High Octane Rating; with Continuous Scale from 40 to 120 O.N. L. B. Sweetland and P. Draper	105
Fractional Distillation of Ternary Mixtures. Part I. A. J. V. Underwood	111
Obituary. Alexander Duckham	119
Problems and Research in Water Flooding. S. T. Yuster	121
The Estimation of the Sulphur Content of Petroleum Distillates. A. R. Javes	129
Some Observations on the Mechanism of the Development of Extreme Pressure Lubricating Properties by Reactive Sulphur in Mineral Oils. W. Davey	154
Analysis of Trinidad Crude Oils. Part II—Paraffinic Oils. F. Morton and A. R. Richards	159
Diagnostic Characteristics of Crude Oil: Fluorescence Analysis in Ultra-Violet Light. J. N. Mukherjee and M. K. Indra	173
Some Chinese Clays as Adsorbing Agents. T. J. Suen and F. H. Yao	179
Second List of Definitions. Sub-Committee No. 11—Nomenclature	188
Quantitative Liquid Phase Hydrocarbon Analysis by Infra-red Absorption. R. R. Gordon and H. Powell	191
Ammonia—A Fuel for Motor Buses. Emeric Krock	213
Bulk Oil Measurement. E. Stokoe	224
Stanlow Branch Meeting	233
Calibration of C.F.R. Reference Fuels. Sub-Committee No. 5—(Engine Tests)	236
The Precision and Accuracy of Viscometry Using B.S.I. Tubes. Viscosity Panel	239
The Testing of Greases for Ball-Bearings. S. R. Pethrick	248
A Rational Basis for the Viscosity Index System. Part I. E. W. Hardiman and Alfred H. Nissan	255
The Problem of Engine Deposits. A. Lahiri, Z. Karpinski and E. W. J. Mardles	271
Lubricating Greases. A. S. C. Lawrence	303
Institute of Petroleum and British Rheologists Club Meeting	315
Some Aspects of Standardization in Oil Measurement. H. Hyams	339
Sulphur Estimation by Lamp Method using I.P. Test 107/45(T). A. R. Javes	343
Stability of Fuel Oil. W. E. J. Broom	347

	PAGE
The Problem of Devising Tests for Soil Stabilization. L. G. Gabriel	353
The Use of Liquid-in-Glass Thermometers. J. G. Durham	356
Institute Meeting	358
The Engine Testing of H.D. Oils. Heavy Duty Engine Oil Panel	362
Institute Meeting	369
Code of Electrical Practice for the Petroleum Industry. Alan D. Maclean	379
Institute Meeting	393
Determination of the Pressure-Viscosity Coefficient and Molecular Weight of Lubricating Oils by Means of the Temperature-Viscosity Equations of Vogel and Eyring. A. Cameron	401
"Eagle" Single Compartment Bottom Sampler. R. G. Mitchell and S. A. Hunn	415
Extension of the Octane Scale above 100 O.N.	418
The Isothermal and Adiabatic Compressibilities of Oil. A. Cameron	421
Spectroscopic Analyses. R. R. Gordon and H. Powell	428
Flow Test for Asphaltic Bitumen. Sub-Committee No. 7—Asphaltic Bitumen	450
Correlation of Chemical Constitution and Oxidation Susceptibility of Lubricating Oil Components. S. F. Kapff, J. R. Bowman, and A. Lowy	453
The Chemistry and Constitution of Asphalts. B. A. Murphy	475
Oil Migration. J. Frost	486
Name Index	495
Subject Index	498