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ETCETERA – International / Imperial Press Conference, 1909, Great Britain (incl. Lord  
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Milner, Sir Harry Brittain (Pilgrims Society founder), Lord Northcliffe, Sir Alfred Mond,  
Sir Arthur Balfour, Sir Henry S. Wellcome, Lord Burnham, Sirs Edward and Harry Levy-  
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THE EVOLUTION OF JOURNALISM  
ETCETERA  
SOUVENIR OF THE  
INTERNATIONAL PRESS CONFERENCE  
LONDON  
1909

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THE EVOLUTION OF JOURNALISM  
ETCETERA  
SOUVENIR OF THE  
INTERNATIONAL PRESS CONFERENCE  
LONDON, 1909

“Man’s earliest chronicle was his footprint; it told of his coming, his going, and of his  
doings.”

Henry S. Wellcome

WORD ON THIS PAGE:

The Evolution of Journalism  
ETCETERA  
Souvenir of the  
INTERNATIONAL PRESS CONFERENCE  
LONDON, 1909 [ca. June]

“Man’s earliest chronicle was his footprint; it told of  
his coming, his going, and of his doings.” Henry S.  
Wellcome

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### **Page 5**

#### **Introduction**

#### **Some Epochs in the Evolution of Journalism**

The intense desire to convey to other and kindred beings the record of their impressions, the story of their triumphs, and even the vision of their thoughts, hopes and ideals, in a manner more permanent and far-reaching than by spoken word, has gripped the best and noblest of each successive generation of men, and urged them forward as though with a compelling hand. It has fashioned them into artists, sculptors, architects, poets and writers, as nature and occasion served, and each in his own way has added to the ever-growing volume of human tradition.

So typical is this characteristic of man that it serves to differentiate him from the lower animals, even in the early dawn of his evolutionary development.

Man alone, of all animals, possesses the graphic instinct, and that faculty he appears to have developed from a period which is lost in the mists of antiquity. It is in the exercise of this gift that we find the genesis of journalistic record, as it is clearly evident that the earliest form of recording and disseminating news was the illustrated chronicle which prehistoric man depicted on such primitive media as horns, bones, rocks, and the walls of caves.

The fragment of reindeer antler graven with the form of the mammoth was but the prototype of the illustrated chronicle of our later days.

The prehistoric tribal artist (forerunner of the war correspondent) delineated the sudden pouncing of the raider and the fierce combat of primitive men.

Step by step the pictograph, which was the origin of calligraphy, was supplemented by signs and symbols which

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served to convey, not at first words, but ideas depicted in graphic scenes of life and action.

The early Babylonian chronicled the struggle between two kingdoms, in curious cuneiform characters on his tablet of clay, thousands of years before the Christian Era, while the antient Egyptian graved his hieroglyphic records on wood, papyrus and stone. The famous Rosetta stone, which solved to our scholars the mystery of the early Egyptian caligraphies, is an example of a State chronicle in the time of the Ptolemies.

The Biblical Chronicles tell us of the Creation, of the Deluge, and of warfare, power, glory and the rise and fall of nations, and finally of the Redeemer.

A century before the Christian Era, the Greek scribes reported the speeches of their orators on papyrus.

To China, that mysterious land of early culture, is assigned the earliest official printed periodical chronicle, which took the form of Imperial edicts, the first of which is said to have been issued more than two thousand years ago, and continues at the present day.

The early Hindus incised on the stone pillars of their antient temples, chronicles of their great kings and warriors, recording their glorious deeds and prowess in battle.

On the American continents many chronicles have been left indicating prehistoric human activities, and the rise and fall, during unknown ages before the Christian Era, of succeeding civilisations, the architectural remains of which may be compared with those of Nineveh and of Egypt.

The Warlike Romans recorded the progress of their ever-victorious armies, as well as events of public interest, in the form of news-letters which were known as the Acta Diurna.

Pliny tells us that Julius Caesar, during his consulship, ordered the Diurnal Acts of the senate and people to be published. The Roman reporters (called "Actuarii") were undoubtedly expert in their calling, as historians relate that they were

Page 7

employed by Cicero to report verbatim the speech of Cato in the great debate on the Catiline Conspiracy.



The Anglo-Saxon chroniclers recorded on vellum for posterity the account of the invasion of Britain by the Romans, and later historians, like Froissart, crystallised in uncial or Gothic script the stirring events of mediæval times.

William of Malmesbury, Higden, and their fellow chroniclers recorded with fidelity the events of the picturesque period in which they lived.

To the great discovery in Europe of the art of printing, about 1450, which affected so profoundly civilisation throughout the world, journalism owes its greatest debt.

From Germany the pupils of Gutenberg soon spread far and wide, and about the year 1474 saw the first book printed in English by William Caxton. Wynken de Worde, worthy follower of his master, took up the torch, which has since shed its light to the farthest corners of the world.

The story of the printed newspaper or modern chronicle in London, which took its rise at the close of the sixteenth century, is told in the following pages, which show the evolution from its very modest beginnings to the great journals of world-wide circulation of to-day.

H. S. W.

“The Newspaper is the only instrument by which the same thought can be dropped into a thousand minds at the same moment.”—DE TOCQUEVILLE.

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Abbreviated Chronological Table  
Showing Progress of Journalism

Year	Place	Name	Remarks
B.C.	Pekin	Pekin Gazette	Earliest known printed Periodical
B.C.			
168	Rome	<i>Acta Diurna</i>	
A.D.			
1615	Frankfort-on-Main	<i>Frankfurter Journal</i>	
1616	Antwerp	<i>Nieuwe Tiffinghen</i>	
1622	London	<i>Weekly News</i>	
1631	Paris	<i>Gazette (de France)</i>	
1641	London	<i>Diurnall Occurrences</i>	First publication of Parliamentary proceedings
1642	Oxford	<i>Mercurius Aulicus</i>	
1643	Stockholm	<i>Post (och Inrikes) Tidende</i>	
1660	Edinburgh	<i>Mercurius Caledonius</i>	Ten numbers only published

1665	London	<i>London Gazette</i> (Temporarily at Oxford)	
1672	Paris	<i>Mercure (de France)</i>	Continued till 1853
1690	Worcester	<i>Berrow's Worcester Journal</i>	
1695	London	<i>The Postboy</i>	First London Daily Paper
1699	Edinburgh	<i>Edinburgh Gazette</i>	
1702	London	<i>Daily Courant</i>	First successful London Daily
1702	St. Petersburg	<i>St. Petersburg Wiedomosti</i>	
1704	London	<i>Defoe's Review of the Affairs of State</i>	Continued till June, 1713
1704	Boston, Massachusetts	<i>Boston News-Letter</i>	Continued until loss of Boston by the British
1705	Edinburgh	<i>Edinburgh Courant</i>	
1711	Dublin	<i>Dublin Gazette</i>	
1712	Hamburg	<i>Hamburg Correspondent</i>	
1716	Rome	<i>Diario di Roma</i>	Continued for nearly 90 years
1726(?)	Madrid	<i>Gaceta de Madrid</i>	Continued until about 1850
1763	Dublin	<i>Freeman's Journal</i>	Earliest Irish Daily Paper
1772	London	<i>The Morning Post</i>	
1782	Glasgow	<i>Glasgow Herald</i>	
1785	London	<i>The Times</i>	Known until 1788 as Universal Daily Register
1789	Paris	<i>Moniteur Universel</i>	
1789	Paris	<i>Journal des Débats</i>	
1792	London	<i>The Observer</i>	
1792	London	<i>The Courier</i>	Long the leading London Newspaper
1794	London	<i>Morning Advertiser</i>	
1798	Leipsic	<i>Allgemeine Zeitung</i>	
1802	London	<i>Globe</i>	
1817	Edinburgh	<i>The Scotsman</i>	Daily from 1855
1827	London	<i>The Standard</i>	Morning Paper from 1857
1841	London	<i>Punch</i>	
1842	London	<i>Illustrated London News</i>	

Page 9  
Abbreviated Chronological Table  
Showing Progress of Journalism—(contd.)

Year	Place	Name	Remarks
1842	London	<i>Lloyd's Weekly News</i>	

1842	Madrid	<i>Heraldo</i>	Chief Spanish Journal for many years
1846	London	<i>The Daily News</i>	
1847	Turin	<i>Il Risorgimento</i>	Edited by Cavour
1847	Florence	<i>L'Opinione</i>	
1847	Glasgow	<i>North British Daily Mail</i>	
1849	Berlin	<i>Volkszeitung</i>	Reputed to have the largest circulation in Germany
1855	London	<i>The Daily Telegraph</i>	
1859	London	<i>Sporting Life</i>	
1865	London	<i>Sportsman</i>	
1865	London	<i>Pall Mall Gazette</i>	
1869	London	<i>The Daily Chronicle</i>	As Clerkenwell News, 1855
1869	London	<i>Graphic (Weekly)</i>	

#### SOME RECENT LONDON DAILIES

Year	Name	Remarks
1881	<i>Evening News</i>	
1884	<i>Financial News</i>	
1888	<i>Financial Times</i>	
1888	<i>The Star</i>	Evening Paper
1889	<i>Financial Truth</i>	
1890	<i>The Daily Graphic</i>	Illustrated
1892	<i>Morning Leader</i>	
1893	<i>Westminster Gazette</i>	
1896	<i>The Daily Mail</i>	
1900	<i>The Daily Express</i>	
1900	<i>Financier &amp; Bullionist</i>	As <i>Financier</i> 1870
1903	<i>Daily Mirror</i>	Illustrated
1905	<i>Evening Standard (1827)</i> and	Incorporated 1905
1905	<i>St. James Gazette (1880)</i>	
1909	<i>Daily Sketch</i>	Illustrated

Page 10 (blank)

Page 11  
Some  
Antient Chronicles

Page 12 (blank)

Page 13  
Antient Chronicles

[Photo]

Pictographic Chronicle of the Reindeer Period. (Earliest known representation of a man.) Serpents and horses' heads are also depicted. From the Grotto of Les Eysies. Europe.

[Photo]

Portrait of Mammoth

Drawn with a flint on a piece of mammoth's ivory, from cave of La Madeleine, Dordogne, France

[Photo]

Prehistoric Pictographic Chronicle of a fight between two reindeer, graved upon a schistose rock. Europe.

Prehistoric Chronicles

Page 14

Antient Chronicles

Antient Babylonian News Chronicle

A Babylonian Clay Tablet written in Cuneiform characters of E-an-na-du, Governor of Shirpuria (Lagash), 4500 B.C.

It contains an interesting account of a struggle between two city kingdoms which occurred about 4500 B.C.

*Translation—*

(1) "E an-na-du, Viceroy of Shirpurla, endowed with power by En-ki (Ea) and nourished with the holy milk of the Lady of the Mountain, the attendant of Uma, priestess of Euch.

(2) "Son of A Kurgah, Viceroy of Shirpurla, the land of Ara, he conquered the land of—he conquered—Gisukh he conquered.

(3) "The city of Ur he ruled and to Ningivsu his word he gave."

The remainder of the inscription relates to some buildings erected by the king.

Page 15

CUNEIFORM NEWS CHRONICLE OF ANTIENT BABYLON

[Translation on page 14]

Antient Chronicles

[Photo]

Page 16

Antient Chronicles

[Photo]

Antient Babylonian Chronicle

Account of the building of the walls and temples of Babylon by Nebuchadnezzar II. about 604-562 B.C. inscribed in archaic Babylonian characters upon a black basalt slab

Page 17

Antient Chronicles

[Photo]

Prehistoric Pictographic Rock Chronicle. South Africa.

[Photo]

Prehistoric Rock Chronicle. North Africa.

Prehistoric African Chronicles

Page 18

[Photo]

Antient Egyptian Hieroglyphic and Pictorial Chronicle

Rameses II. leading his warriors in battle, 1322 B.C.

Page 19

Antient Chronicles

[Photo]

Antient Egyptian Chronicle

In the time of the Ptolemies, State documents were promulgated by inscribing them on shaped stones, which were set up in public places. The famous Rosetta stone here depicted was a publication record of this kind, and was set up in the ninth year of the reign of Ptolemy Epiphanes, or Ptolemy V., 205 B.C. It is written in Hieroglyphics, Demotic and Greek; a specimen of each of these forms of caligraphy is here represented

Page 20

[Photo]

Antient Phœnician Chronicle

This inscription in the Phœnician character was cut on the wall of the conduit of the Pool of Siloam about 700 B.C.

Page 21

Antient Chronicles

[Photo]

Assyrian account of the Creation

[Photo]

Assyrian account of the Deluge

Antient Assyrian Chronicles

These two clay tablets, giving an account of the Creation and the Deluge, are from the library of Assur-bani-pal, King of Assyria about 668-626 B.C., at Nineveh

Page 22

Antient Chronicles

[Photo]

Antient Assyrian Pictorial Chronicle

A carving in basalt depicting an antient Assyrian King receiving homage and tribute from five conquered nations

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Antient Chronicles

[5 Photos]

Primitive Greek Pictorial Chronicles

Some of the earliest examples of Greek pictographic symbols depicting: (1) An archer in the act of shooting. (2) A scene with goat. (3) A pugilistic encounter. (4) A scene with centaur. (5) Three early Greek warriors with spears

Page 24

Antient Chronicles

[Photo]

Antient Greek Chronicle

Written on papyrus about 100 B.C., reporting Hyperides' Oration against Philippides

Page 25

Antient Chronicles

[Photo]

Antient Hindu Chronicle  
about 240 B.C.

Giving an account of King Vrishadéra, and relating his deeds, his prowess in battle, etc.

Page 26

Antient Chronicles

4<sup>TH</sup> OF THE KALENDS OF APRIL IN THE YEAR 585, AFTER THE BUILDING OF ROME.

IT THUNDERED, AND AN OAK WAS STRUCK WITH LIGHTNING IN THAT PART OF MOUNT PALATINE CALLED SUMMA VELIA, EARLY IN THE AFTERNOON.

A FRAY HAPPENED IN A TAVERN AT THE LOWER END OF BANKER STREET,  
IN WHICH THE KEEPER OF THE HOG-IN-ARMOUR TAVERN WAS  
DANGEROUSLY WOUNDED

TERTINIUS THE ÆDILE, FINED THE BUTCHERS FOR SELLING MEAT WHICH  
HAD NOT BEEN INSPECTED BY THE OVERSEERS OF THE MARKETS.

THE FINE IS TO BE EMPLOYED IN BUILDING A CHAPEL TO THE TEMPLE OF  
THE GODDESS TELLUS.

Antient Roman News Letter

Translation from a Roman Acta Diurna, or the daily report of public occurrences, which  
was issued by authority, 168 B.C.

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Antient Chronicles

[Photo]

Primitive Viking Chronicle

A Viking pictograph traced on rock representing one of their foreign raids. Dating from  
an unknown period before the Christian Era

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Antient Chronicles

[Photo]

Primitive Pictographic Chronicle. Australia

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Antient Chronicles

[Photo]

Prehistoric Pictographic Rock Chronicle. Utah.

Incised on very hard blue granite

[Photo]

Prehistoric Pictorial Earth Chronicle. Wisconsin.

In the form of mounds, depicting a treaty of alliance between two tribes

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Antient Chronicles

[Photo]

Prehistoric Rock Chronicles. New Mexico

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Antient Chronicles

[Photo]

Prehistoric Pictographic Rock Chronicles  
of Masaya. Central America

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Antient Chronicles

[Photo]

Prehistoric Pictographic Painted Rock Chronicles  
of Managua. Central America

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Antient Chronicles

[Photo]

Antient Toltec Hieroglyphic and Pictorial Chronicle.  
Yucatan

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Antient Chronicles

[Photo]

Antient Mexican Pictorial Chronicle  
Representing a company of traders and messengers being attacked on a journey

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Antient Chronicles

[Photo]

Prehistoric Pictographic Rock Chronicle  
South America

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Antient Chronicles

[Photo]

Jejetepeque Prehistoric Rock Chronicles  
South America

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Antient Chronicles

[Photo]

Antient Chimu Modelled Chronicle  
Representing a Chimu Royal Warrior with his national weapon. Before the Christian  
Era. From the Hewett-Myring Collection.

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Antient Chronicles

[6 Photos]



(1 and 2) Warriors in Combat (3 and 4) Scenes of the Chase (5) A Chimu Mercury (6) Representation of an unidentified and extinct beast of burden which was ridden by lying flat across its broad level back

#### Antient Chimu Pictorial Chronicles

Dating from an unknown period before the Christian Era. From the unique collection of Mr. Hewett-Myring, now being offered to the British Museum. This collection may be acquired by the nation if some public spirited man of wealth will render this possible

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Antient Chronicles

[Photo]

A Victorious General being honoured by his King on his return from a Campaign

[Photo]

Depicting a Military Victory over a Naval Enemy

#### Antient Peruvian Pictorial Chronicles

Page 40

Antient Chronicles

[Photo]

Anglo-Saxon Manuscript Chronicle

Written about the year 1066, giving an account of the invasion of Britain by Julius Cæsar

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Antient Chronicles

[Photo]

Froissart's Manuscript Chronicle

Written about 1390

Page 42

Antient Chronicles

[Photo]

The Nuremberg Chronicle

Printed by A. Koburger, 1493

Page 43

Antient Printed Periodical

[Photo]

The Pekin Gazette. China

The earliest known printed periodical chronicle, said to have been founded long before the Christian Era. Its publication has been continuous up to the present day

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Antient Chronicles

[Photo]

North American Wampum Chronicle

A treaty of peace concluded by William Penn, about 1681

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The Evolution of Journalism

Some Famous London Journals

and some

Editors of Modern London Chronicles

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[Photo]

Caxton showing specimen of his printing to King Edward IV. at the Almonry at Westminster

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The Evolution of Journalism

The 23. of May.

WEEKELY

News from Italy,

GERMANIE, HUNGARIA,

BOHEMIA, the PALATINATE,

France, and the Low Countries

*Translated out of the Low Dutch Copie*

[Photo]

London,

Printed by I.D. for *Nicholas Bourne* and *Thomas Archer*, and are to be sold at their shops at the *Exchange*, and in *Popes-head Pallace*.

1622.

The Weekly News

The first Periodical Newspaper printed in England. Founded and conducted by Nathaniel Butter

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The Evolution of Journalism

The

Diurnall Occurrences,

or

Dayly Proceedings

OF

Both Houses, in this *Great and Happy*

PARLIAMENT,

From the third of *November*, 1640,  
to the third of *November* 1641  
WITH  
A Continuation of all the Speeches,  
from *June* last, to the third of *November*, 1641.  
LONDON  
Printed for William Cooke, and are to be sold at his shop  
at *Furnivalls-Inne* Gate, in Holbourne, 1641

The Diurnall Occurrences  
The Diurnall Occurrences or Dayly Proceedings of Both Houses was first issued on Nov.  
3<sup>rd</sup>, 1641, under the authority of the Long Parliament, and contained the first publication  
of parliamentary proceedings

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The Evolution of Journalism

MERCURIUS  
AULICUS,  
A  
DIURNALL,  
Communicating the intelligence, and affaires of the Court to the rest of the Kingdome.  
[Photo]  
OXFORD,  
*Printed by H. Hall, for W. Webb. Ann. Dom, M. DC. XLII*

The Mercurius Aulicus  
First printed in Oxford in 1642 at the time of the Civil War. It was the forerunner of  
many political journals entitled the Mercury

Page 50  
The Evolution of Journalism  
[Photo of newspaper]  
The London Gazette  
First published in London, February 5<sup>th</sup>, 1665 under the control of Joseph Williamson  
Perrot being for some time acting editor

Page 51  
The Evolution of Journalism  
[Photo of newspaper]  
The first daily morning paper was the Daily Courant, first published on March 11<sup>th</sup>, 1702,  
by a bookseller named Mallet

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The Evolution of Journalism  
[Photo of newspaper]

## The Morning Post

Originally known as The Morning Post and Daily Advertiser, founded November, 1772, by Henry Bate, and edited by him from 1775 to 1780

Page 53

[Photo]

Fabian Ware

Editor of the Morning Post. Born at Clifton, Bristol, 1869. Educated by private tutors and at the Universities of London and Paris: Bachelier-ès-Sciences 1894. Ten years assistant master in secondary schools: education examiner and inspector. Director of Education, in Transvaal, 1901, 1903-5; and Orange River Colony, 1903-5. Contributor to the Morning Post 1899; became Editor 1905

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The Evolution of Journalism

[Photo of newspaper]

The Times

Originally issued under the title The Daily Universal Register, founded December 13<sup>th</sup>, 1785; re-founded as The Times by John Walter (the first), January 1<sup>st</sup>, 1788.

Page 55

[Photo of C. Moberley Bell]

C. Moberley Bell

Managing Editor of The Times. Born 1847. Author of Khedives and Pashas, 1884; Egyptian Finance 1886; From Pharaoh to Fellah, 1889

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The Evolution of Journalism

[Photo of newspaper]

Morning Advertiser

Founded in 1794

Page 57

[Photo of George Washington Talbot]

George Washington Talbot

Editor of the Morning Advertiser since 1903. Born in Dublin, December, 1848; son of the late Henry Wm. Talbot, newspaper proprietor of Williamstown, Co. Dublin; educated at Kingstown School and Kilkenny College. After some experience of journalism in Ireland, joined the staff of the Morning Advertiser in 1887.

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The Evolution of Journalism

[Photo of newspaper]

The Globe

The first number. Founded 1802

Page 59

[Photo of Hildebrand Harmsworth]

Hildebrand Harmsworth

Proprietor of the Globe newspaper and of Golf Illustrated. Born 15<sup>th</sup> March, 1872, son of the late Alfred Harmsworth, barrister. Educated by private tutors and at Merton College, Oxford. Contested Gravesend as Imperial Liberal in 1900, started New Liberal Review, 1901. Joined Mr. Chamberlain's fiscal reform party in 1904, and contested Mid Salop in 1906

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The Evolution of Journalism

[Photo of newspaper]

The Standard

Founded and conducted by Dr. Giffard in 1827

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[Photo of H. A. Gwynne]

H. A. Gwynne

Editor of The Standard since 1904. Born in 1866. Was Times correspondent in the Balkans; Reuter's in Roumania, 1893; in Ashanti, 1895; with Lord Kitchener's Expedition to Dongola, 1896; with the Greco-Turkish War, 1897; and the Berber and Peking Expedition, 1898; and afterwards went through the Boer War. Appointed Foreign Director of Reuter's Agency, 1904.

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The Evolution of Journalism

PUNCH

OR THE

LONDON CHARIVARI

[Photo]

VOLUME THE FIRST.

LONDON:

PUBLISHED FOR THE PROPRIETORS, AT THE OFFICE, 13, WELLINGTON

STREET, STRAND,

AND SOLD BY ALL BOOKSELLERS.

PUNCH

Founded in 1841, and first edited by Mark Lemon

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[Photo of Owen Seaman]

Owen Seaman. M.A., D. Litt.

Editor of Punch since 1906. Born 1861. Professor of Literature at Durham College of Science. Newcastle-on-Tyne, 1890; began writing for Punch and for National Observer

as “O.S.” in 1894; joined staff of Punch, 1897, and became Assistant Editor, 1902.  
Called to the Bar, Inner Temple, 1897

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The Evolution of Journalism

[Photo of newspaper]

Illustrated London News

Founded in 1842 by Herbert Ingram

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[Photo of Sir William Ingram]

Sir William Ingram, Bart.

Managing Director Illustrated London News and Sketch, Ltd. Born, 1847; son of the late Mr. Herbert Ingram, M.P. for Boston, founder of the Illustrated London News. M.P. for Boston, 1874-80, 1885-86, 1892-95

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The Evolution of Journalism

[Photo of newspaper]

The Daily News

Founded in 1846 by Bradbury and Evans, with Charles Dickens as first Editor

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[Photo of Alfred G. Gardiner]

Alfred G. Gardiner

Editor of the Daily News. Born in 1865; received his early journalistic training on the staff of the Essex County Chronicle, published in his native town, Chelmsford. After a brief stay at Bournemouth, he joined the Northern Daily Telegraph at Blackburn in 1886, and remained with that paper until his appointment to the editorship of the Daily News in 1902. Author of a series of pen portraits entitled “Prophets, Priests and Kings”

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The Evolution of Journalism

[Photo of newspaper]

The Daily Telegraph

Originally issued under the title of The Daily Telegraph and Courier, founded by Col. Sleigh as a single sheet at twopence, on 29<sup>th</sup> June, 1855

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[Photo of John Merry Le Sage]

John Merry Le Sage

Lieutenant of the City of London; Managing Editor of the Daily Telegraph. Born 1837. After a short provincial career joined the staff of the Daily Telegraph, and served as special correspondent in France, Germany, Italy, Russia, Egypt, America and Canada; accompanied the Germans in the 1870-71 campaign, and Lord Wolseley in Egypt in

1882; and was in Paris during the Commune. Acting Editor of the Daily Telegraph for many years.

Page 70

The Evolution of Journalism

[Photo of newspaper]

The Daily Chronicle

Founded 1869 on the older Clerkenwell News, which dated from 1855, by Edward Lloyd, and first edited by R. Whelan Boyle

Page 71

[Photo of Robert Donald]

Robert Donald

Managing Editor of the Daily Chronicle and Lloyd's Weekly News; Founder and Editor of the Municipal Journal. Born in Scotland in 1861. Has had varied journalistic experience in Edinburgh, Northampton, Paris, New York, London, etc. Publishes the Municipal Year Book and the London Manual.

Page 72

The Evolution of Journalism

[Photo of newspaper]

The Pall Mall Gazette

Founded by George Smith (of Smith & Elder) on February 7<sup>th</sup>, 1865, and first edited by Frederick Greenwood

Page 73

The Evolution of Journalism

[Photo of newspaper]

The Westminster Gazette

Founded by Sir George Newnes in 1893, and first edited by E. T. Cook.

Page 74

The Evolution of Journalism

[Photo of newspaper]

The Graphic

Founded December 1869

Page 75

[Photo of Carmichael Thomas]

Carmichael Thomas

Born in 1856, and has been at the Graphic since he was 17 years of age. He has been engraver, Sub-Editor, Editor and Chairman, also Managing Director of the Graphic, Daily Graphic, and Bystander, which last position he still holds. He has read papers on illustrated journalism before various institutions and has been connected with the Royal Society of Arts as treasurer, and vice-president and member of the council. Has served

on committees at the Board of Education in connection with fine arts. Vice-president of the Newspaper Society, 1909

Page 76

The Evolution of Journalism

[Photo of newspaper]

The Daily Mail

Founded and conducted by Lord Northcliffe, February, 1896

Page 77

[Photo of Thomas Marlowe]

Thomas Marlowe

Editor of the Daily Mail. Born at Portsmouth, 18<sup>th</sup> March, 1868; son of T. H. Marlowe, Newtown, Waterford. Educated at Portsmouth, Dublin, Waterford, Queen's College, Galway, London Hospital. Managing Editor of the Daily Mail from 1899-1904. Director of Associated Newspapers, Limited

Page 78

The Evolution of Journalism

[Photo of newspaper]

The Sphere

Founded January, 1900

Page 79

[Photo of Clement King Shorter]

Clement King Shorter

Editor of The Sphere. Commenced his career in the Civil Service (Somerset House); Assistant Editor Penny Illustrated Paper, 1890; Editor Illustrated London News, 1891-1900. In conjunction with Illustrated News Company founded the Sketch in 1893 and edited it for seven years, at the same time continuing his editorship of the Illustrated London News and the English Illustrated Magazine. One of the founders of the Omar Khayyam Club

Page 80

The Evolution of Journalism

[Photo of newspaper]

The Daily Express

Founded in 1900 by C. Arthur Pearson

Page 81

[Photo of Ralph D. Blumenfeld]

Ralph D. Blumenfeld

Editor of Daily Express since 1904. Born in U.S.A., 1864; son of David Blumenfeld, American editor and newspaper proprietor. Was junior reporter on Chicago Herald, 1884; Editor of Music and Drama, 1885; Editor of New York Evening Telegram; London



Correspondent New York Herald until 1893; News Editor Daily Mail, 1900-1902; and Foreign Editor of the Express in the latter year.

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Page 83

Some Famous  
Founders and Proprietors  
of Newspapers

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Page 85

[Photo of John Walter ('The First')]

John Walter ("The First")

Born 1739. Died 1812. The first proprietor of The Times. In 1780 he bought Henry Johnson's two patents for "logography," a method of using entire words or parts of words in printing. The invention itself proved unsuccessful, but the London Daily Universal Register, which he founded in 1785 to exploit it, became in 1788 The Times, and has continued to grow in influence and success during its eventful history of more than 100 years

Page 86

[Photo of Lord Glenesk]

Lord Glenesk

Better known as Sir Algernon Borthwick. Born 1830. Was proprietor of the Morning Post. Son of late Peter Borthwick, M.P. for Evesham. Was Vice Grand Master and Trustee of the Primrose League, and President of the Newspaper Press Fund. Represented South Kensington in Parliament from 1885 till 1895. Died 1908

Page 87

[Photo of Lord Burnham]

Lord Burnham, K.C.V.O., D.L., J.P.

*Hon. President International Press Conference, London, 1909*

Formerly Sir Edward Levy Lawson, Bart. Born 28<sup>th</sup> December, 1833. Principal proprietor of the Daily Telegraph; Lieutenant for the City of London. President of the Institute of Journalists. 1886; President of the London Press Club since 1905; and President of the Newspaper Press Fund, 1909

Page 88

[Photo of Sir George Newnes]

Sir George Newnes, Bart., M.P.

Born 13<sup>th</sup> March, 1851. Founder of George Newnes, Limited, proprietors of Strand Magazine, Tit-Bits, etc; founder of the Westminster Gazette. Was M.P. for Newmarket from 1885 to 1895, and has represented Swansea town since 1900

Page 89

[Photo of Lord Northcliffe]

Lord Northcliffe

*A Vice-President of the International Press Conference, 1909*

Mr. Alfred Charles Harmsworth. Born 15<sup>th</sup> July, 1865. Well known as the founder of a great number of successful popular journals and magazines, including the Daily Mail. He supported the Jackson-Harmsworth Arctic expedition. He was knighted in 1904, and raised to the peerage as Baron Northcliffe in the following year

Page 90

[Photo of C. Arthur Pearson]

C. Arthur Pearson

Principal proprietor of Pearson's Weekly, the Daily Express, the Standard, and numerous periodicals. Born 24<sup>th</sup> February, 1866. After leaving Winchester he joined the staff of Sir George Newnes and rapidly rose to the position of manager; after four years he resigned and founded the great newspaper enterprises of which he is chief

Page 91

Some Notable

London Contributors

To The

Evolution Of Journalism

Page 92

[Photo of John Walter ('The Second')]

John Walter ("The Second")

Born 1784. Died 1847. Son of the founder and proprietor of The Times, he became the active manager of the paper in 1803, and by his exceptional talent, energy and resourcefulness greatly enhanced its importance. He organised a system for collecting accurate foreign intelligence and transmitting it rapidly to London, and in 1814, after great difficulties, he succeeded in printing The Times by steam. Elected Member of Parliament for Berkshire in 1833

Page 93

[Photo of John Thaddeus Delane]

John Thaddeus Delane

A famous Editor of The Times. Born 1817; died 1879. Educated at private schools, King's College, London, and Magdalen Hall, Oxford. In May, 1841, when not quite 24 years of age, Mr. Walter appointed him Editor of The Times, and he retained that position for 36 years. Under his guidance the paper attained a circulation and influence till then unequalled in journalism. His outspoken criticisms of the railway mania and of the management of the Crimean War were memorable features of his time

Page 94

[Photo of Douglas Jerrold]

Douglas Jerrold

Journalist, Dramatic Author and Wit. Born in 1803. His father, Samuel Jerrold, was the manager of a theatre at Sheerness. As a boy he was a midshipman under Captain Austen, brother of Jane Austen the novelist. At 21 he wrote "Black-eyed Susan," and afterwards a number of highly successful comedies and melodramas. Constant contributor to Punch from 1841, in which journal his immortal "Caudle Lectures" appeared. He was associated as dramatic critic, contributor, and Editor with a number of journals, including the Sunday Monitor, the Monthly, New Monthly, Ballot, Athenæum, Blackwood's, the Illustrated Magazine, and for the last few years of his life was editor of Lloyd's Weekly Newspaper. Died in 1857

Page 95

[Photo of Charles Dickens]

Charles Dickens

Who was born in 1812, was a Journalist as well as a Novelist. He began his writing career as a reporter for the Morning Chronicle, and contributed some of his early papers and sketches to the pages of the Evening Chronicle and the Monthly Magazine. In after years he became the first Editor of the Daily News, and, for a longer period, of Household Words and All the Year Round. Author of Pickwick Papers, David Copperfield, and many other world-famed novels

Page 96

[Photo of William B. Tegetmeier]

William B. Tegetmeier

Veteran naturalist and journalist, born at Colnbrook, Bucks, 1816, his father was a Royal Navy surgeon. Was educated for the Medical Profession. Lecturer at Government Training College, made a special study of variation in animals, working for many years with Darwin; demonstrated the primary circular form of the bee's cell, is one of the highest authorities on bird and animal life; lecturer Zoological Society; on staff of Field for 50 years, has written 1,100 consecutive articles for the Queen; one of first secretaries Savage Club; contributor to Encyclopedia Britannica; author of The Poultry Book; Pigeons; Table and Market Poultry; The Homing Pigeon; Natural History of the Cranes; Pallas' Sand Grouse, 1888; Pheasants, 4<sup>th</sup> Edition, 1904; Horses, Zebras, and Mule Breeding, 1895; The House Sparrow, 1899.

Page 97

[Photo of Sir John Tenniel]

Sir John Tenniel, R.I.

Veteran Punch cartoonist. Born 1820; created a Knight, 1893. Doyen of journal artists, having been actively engaged on the staff of Punch for fifty years; he joined in 1851 and retired in 1901. Besides innumerable political cartoons in Punch, he has illustrated Lalla Rookh, The Ingoldsby Legends, Alice In Wonderland, Alice through the Looking-Glass, etc., etc.

Page 98

[Photo of Harrison Weir]

Harrison Weir

Painter and Illustrator—bird and animal subjects; Author and Journalist. Born 1824. First exhibited at British Institution, 1843; afterwards at Royal Academy, etc. Was on the staffs of Illustrated London News, Field, Pictorial Times, Pictorial World, Graphic, Black and White, Poultry, etc. Wrote and illustrated Our Poultry, and All About Them (the work of twenty years). Died 1900

Page 99

[Photo of George Augustus Sala]

George Augustus Sala

Journalist and Novelist: of Italian descent. Was born in London 24<sup>th</sup> November, 1828. Became a contributor to Household Words in 1851, and afterwards to the Welcome Guest, the Illustrated London News, and the Cornhill Magazine. Founded and edited Temple Bar, 1860-66. Special Correspondent for the Daily Telegraph during the American Civil War, in Italy with Garibaldi, and in France 1870-71. Died 1895

Page 100

[Photo of Joseph Hatton]

Joseph Hatton

Journalist and Author; born 3<sup>rd</sup> February, 1841. Educated at Bowker's, Chesterfield, and by private tutors. Came to London in 1868 to conduct The Gentleman's Magazine; for years Special Correspondent in Europe of the New York Times and Sydney Morning Herald; represented the Standard on special mission to America; edited Sunday Times and The People, in which latter paper he published his well-known series of "Cigarette Papers." Author of a number of successful novels and plays. Died in 1907

Page 101

[Photo of Justin McCarthy]

Justin McCarthy, F.J.I.

Journalist, Novelist, Historian and Politician. Born 1830. Early journalistic career passed in Cork, 1848-52, Liverpool, 1852-60, London, 1880; Editor of Morning Star, 1864-68; and leader writer for the Daily News from 1870. Entered Parliament in 1879, and led the Irish Party, 1890-1896. Author of many novels and historical works, including the History of Our Own Times.

Page 102

[Photo of George Manville Fenn]

George Manville Fenn

Writer of boys' stories. Born 1831. First wrote for Chambers' Journal and All The Year Round; later, became Editor of Cassell's Magazine and Editor and proprietor of Once A Week. Wrote more than a hundred novels and over a thousand short stories. Died 1909

Page 103

[Photo of Right Hon. Henry Labouchere]

Right Hon. Henry Labouchere, P.C.

Journalist; proprietor of Truth. Born in London, 1831; eldest son of John Labouchere, Broome Hall, Surrey. Educated at Eton. In the Diplomatic Service, 1854-1864, serving

at Washington, Munich, Stockholm, St. Petersburg, etc. In 1866 entered Parliament, where he has represented successively Windsor, Middlesex and Northampton

Page 104

[Photo of Edmund Yates]

Edmund Yates.

Journalist and Novelist. Born Edinburgh, 1831. He went into the Civil Service, but in 1854 turned his attention to literature, writing many novels, etc. Later he became Editor of Temple Bar, Tinsley's Magazine, and other periodicals; but his principal achievement was the founding, in conjunction with Grenville Murray, in 1874, of the Society weekly, The World, which he edited for many years. Died 1894

Page 105

[Photo of Sir Edwin Arnold]

Sir Edwin Arnold, K.C.I.E., C.S.I.

Journalist, Poet, *Littérateur*. Born 10<sup>th</sup> June, 1832. Educated at Rochester, King's College, London, and University College, Oxford. Won the Newdigate Prize 1853. Was appointed Principal of the Sanscrit College at Poona, India. Joined the staff of the Daily Telegraph in 1861 and continued to be associated with that journal. Died in 1904. Author of The Light of Asia and numerous other works

Page 106

[Photo of Sir Edward Russell]

Sir Edward Russell, Kt., F.J.I.

Editor of the Liverpool Daily Post since 1869. Born 1834. Became Assistant Editor of the Post, 1860; leader writer and dramatic critic for Morning Star, London, 1866. Represented Glasgow in Parliament, 1885-87. Has written his reminiscences and published many pamphlets. Treasurer of the Newspaper Press Fund. Former President of the Institute of Journalists

Page 107

[Photo of Sir Francis Cowley Burnand]

Sir Francis Cowley Burnand, Kt.

Editor of Punch, 1880-1906. Born 29<sup>th</sup> November, 1836. Educated at Eton and Trinity College, Cambridge. Commenced literary career at age of fifteen by writing a farce, which was produced at Theatre Royal, Worthing. Founder of the A. D. C., Cambridge. He was associated with H. J. Byron in founding Fun, but at 25 began writing for Punch, and in 1880 became Editor. Has written over 120 plays, chiefly burlesques and light comedies. Knighted in 1902

Page 108

[Photo of Edward John Goodman]

Edward John Goodman

Journalist, Novelist and Dramatist. Born 1836. Entered journalism, 1857, gaining experience on the editorial staffs of the London Daily Guide, Edinburgh Courant, Central

Press, Manchester Courier, Yorkshire Post, and for many years was on the staff of the London Daily Telegraph. Hon. Secretary of the Savage Club, 1879-86

Page 109

[Photo of Sir Hugh Gilzean Reid]

Sir Hugh Gilzean Reid, Kt., LL.D., J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

Chief founder and first President of the Institute of Journalists and a promoter of the International Press Congress, founded in Belgium, 1894. Born 1838. After conducting papers in Peterhead, 1856, and Edinburgh, 1859, became the pioneer of daily and weekly newspapers in the provinces, founding the North-Eastern Daily Gazette, the first existing halfpenny evening paper in the kingdom, and a series of journals in Yorkshire, Lancashire, the Midlands and London. M.P. for Aston Manor in 1886. President of Society of Newspaper Proprietors and Managers, 1898-99

Page 110

[Photo of Thomas Catling]

Thomas Catling

Veteran Journalist. Born at Cambridge 23<sup>rd</sup> September, 1838. Educated at private schools and Working Men's College, London. Worked for twelve years in the composing-room of Lloyd's Weekly News; Sub-Editor, 1866; Editor, 1884; retired 1907. Now writing his reminiscences of 53 years on Lloyd's Newspaper. Has travelled through America and Canada, Syria and the Holy Land, Africa, Austria, Dalmatia, Bosnia and Herzegovina. Delegate to Conference of International Association of Journalists at Berlin in 1908

Page 111

[Photo of Lord Morley]

Lord Morley, P.C., O.M., M.A., F.R.S., LL.D., D.C.L.

Viscount Morley. Journalist, Biographer, Critic and Statesman. Born 1838. Educated Cheltenham and Oxford, and called to the Bar, 1873. Editor of the Fortnightly Review, 1867-1882, and of the Pall Mall Gazette, 1880-1883. M.P. for Newcastle-on-Tyne, 1883; Chief Secretary for Ireland, 1886 and 1892-95; Secretary for India, 1905. Created Viscount, 1908. Author of studies of Burke, Voltaire, Cobden, etc., and biographer of Gladstone.

Page 112

[Photo of William Senior]

William Senior, F.J.I.

Editor of the Field since 1900. Born 1838. Entered journalism in 1858, and joined Daily News staff in 1866, acting for over a quarter of a century as its Special Correspondent; Angling Editor of Field, 1883, well known under his angling nom de plume "Red Spinner." Author of books on travel and sport. Celebrated last year the jubilee of his professional career

Page 113

[Photo of Richard Whiteing]

Richard Whiteing

Journalist and Author. Born 1840. Inaugurated his journalistic career by writing for the Evening Star, 1866; later, on staffs of Morning Star, Press Association, Manchester Guardian, World (London), World (New York), and Daily News. Author of several novels, including No. 5 John Street

Page 114

[Photo of Sir Douglas Straight]

Sir Douglas Straight, Kt., LL.D., F.J.I.

For some thirteen years Editor of the Pall Mall Gazette; Hon. Treasurer Newspaper Society. Born in London, 22<sup>nd</sup> October, 1844; son of Robert Marshall Straight, barrister. Educated at Harrow. Engaged in newspaper and magazine work till 1865, when called to the Bar, and became a very successful advocate. M.P. for Shrewsbury, 1870-1874. Judge of the High Court of Judicature at Allahabad from 1879 until 1892, in which year he was Knighted

Page 115

[Photo of Sir F. C. Gould]

Sir F. C. Gould, Kt., J.P., F.J.I.

Caricaturist and Journalist. Assistant Editor Westminster Gazette. Born at Barnstaple, 1844. Created a Knight 1906. Educated at private schools. For many years on London Stock Exchange. Illustrated a series of Christmas Numbers for Truth, and was a frequent contributor to the Pall Mall Gazette

Page 116

[Photo of Edward Linley Sambourne]

Edward Linley Sambourne

Journalistic Artist and Designer. Born London, 4<sup>th</sup> January, 1845. Educated at City of London School and Chester College. Apprenticed in the Marine Engineering Works of John Penn & Son, Greenwich. Began to contribute to Punch in 1867, under Editorship of Mark Lemon. Succeeded Sir John Tenniel as principal cartoonist in 1901

Page 117

[Photo of Sir Henry W. Lucy]

Sir Henry W. Lucy, J.P.

“Toby M.P.” of Punch. Born 1845. Chief Reporter of the Shrewsbury Chronicle, 1864; on the Pall Mall Gazette, 1870; appointed Chief of Gallery Staff of the Daily News in 1873; Editor in 1886, but resigned and returned to Press Gallery, 1887. Joined staff of Punch, 1881. Knighted 1909

Page 118

[Photo of Edmund Robbins]

Edmund Robbins

Manager of the Press Association since 1880. Born 1847. Commenced work on the Launceston Weekly News, 1858, and in 1865 went to the Central Press Agency; Sub-

Editor Press Association on its foundation in 1870, and was thereafter continuously advanced. Secretary of the Provincial Newspaper Society 1870-1881

Page 119

[Photo of George R. Sims]

George R. Sims, F.J.I.

“Dagonet” of the Referee. Born in 1847. He has written continuously for the Press and the stage since 1874. His peculiar knowledge of London Life has been strikingly presented in many of his writings, and over a score of plays. Author of a number of popular novels. Dorcas Dene; Memoirs of a Landlady, etc.

Page 120

[Photo of Sir Joseph Lawrence]

Sir Joseph Lawrence, J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

Born 23<sup>rd</sup> September, 1848. Chairman of Linotype and Machinery, Ltd. Commissioner of Lieutenancy for City of London. Member of Surrey County Council; was one of the principal and earliest pioneers of the Manchester Ship Canal. Member of Parliament for Monmouth Boroughs, 1901-1906

Page 121

[Photo of T. P. O'Connor]

T. P. O'Connor, M.A., M.P., F.J.I.

Representative in Parliament of Liverpool (Scotland Division) since 1885. Born in Athlone, 1848. Was Reporter on Saunders' Newsletter, Dublin, 1867; Sub-Editor on Daily Telegraph, 1870; later, on New York Herald (London). Founded and was first Editor of the Star, Sun, Weekly Sun, M.A.P., P.T.O., and T.P.'s Weekly. First entered Parliament as Member for Galway, 1880. Author of several biographical and historical works

Page 122

[Photo of W. T. Stead]

W. T. Stead

Editor of the Review of Reviews and the Masterpiece Library. Born in 1849. Was Editor of the Northern Echo, Darlington, from 1871 till 1880; Editor of the Pall Mall Gazette, 1883-89. Founded the Review of Reviews, 1890; the American Review of Reviews, 1891; Australasian Review of Reviews, 1894; commenced the Masterpiece Library of Penny Poets, Novels and Prose Classics in 1895. Has issued numerous characteristic publications dealing with public events since 1884

Page 123

[Photo of W. L. Courtney]

W. L. Courtney, M.A., LL.D. F.J.I.

Born in 1850. Became Editor of Murray's Magazine and the Fortnightly Review in 1894; is on the staff of the Daily Telegraph, and a director of the publishing firm of



Chapman and Hall. He was Headmaster of Somersetshire College, Bath, in 1873, and has written many interesting essays

Page 124

[Photo of Edward Eden Peacock]

Edward Eden Peacock, F.J.I.

Manager of the Morning Post. Managing Director of the East of England Newspaper Company. Hon. Secretary of the Savage Club. Born 1850. Educated at King's College, London

Page 125

[Photo of Major G. F. Gratwicke]

Major G. F. Gratwicke, V.D., R.W.O., F.J.I.

*President, and Chairman of the Executive, International Press Conference, 1909*

President of the British International Association of Journalists, 1906-9. Journalist; Managing Director Devon and Exeter Daily Gazette. Born 1850. Sheriff of Exeter, 1900; President of the Institute of Journalists, 1905-6, and Founder of its Orphan Fund; on Committee of Newspaper Society; retired Major 4<sup>th</sup> V.B. Devonshire Regiment; famous shot. Delegate to the International Congresses of the Press at Antwerp, Bordeaux and Rome, and of the World's Press Congress at St. Louis

Page 126

[Photo of Lord Milner]

Lord Milner, G.C.B., G.C.M.G.

High Commissioner for South Africa, 1897-1905. Barrister, Inner Temple, 1881. Engaged mainly in journalism from 1882 to 1885 (Pall Mall Gazette and other journals). Private Secretary to Chancellor of Exchequer, 1887-89. Under Secretary for Finance in Egypt, with Lord Cromer, 1889-1902. Governor of Transvaal and Orange River Colony, 1901-5

Page 127

[Photo of Harry Furniss]

Harry Furniss

Caricature Artist and Journalist. Born Wexford, 1854. Settled in London at the age of nineteen. Has been for many years a contributor to the Illustrated London News, Graphic, Black and White, and principal magazines. Joined staff of Punch in 1880. Has toured United States of America, Canada, Australia, etc., as humorous lecturer. Founder of Lika Joko and New Budget, and author of a number of illustrated books

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[Photo of Alderman S. S. Champion]

Alderman S. S. Champion, J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

President of the Institute of Journalists, 1908-9; President of the British International Association of Journalists, 1902-6. Part proprietor of the Northampton Mercury and

allied publications. Was largely instrumental in founding the Provident Fund of the Institute of Journalists, and was its first Treasurer

Page 129

[Photo of Frank Lloyd]

Frank Lloyd, F.J.I

*A Vice-President of the International Press Conference, 1909*

A Director in the firm of Edward Lloyd, Ltd., and associated with the Daily Chronicle, Lloyd's Weekly News, and other publications. A Vice-President of the British International Association of Journalists and of the Newspaper Press Fund

Page 130

[Photo of Richard Caton Woodville]

Richard Caton Woodville

Journalistic Artist and Battle Painter. Born London, 7<sup>th</sup> January, 1856. Educated at Düsseldorf in Germany. Commander of the Order of Medjidie and of Daniello Montenegro. Went through Turkish (1878), and Egyptian campaigns (1882)

Page 131

[Photo of E. T. Reed]

E. T. Reed, J.P.

Edward Tennyson Reed. Artist and Journalist on the staff of Punch. Born 27<sup>th</sup> March, 1860; only son of the late Sir Edward James Reed, K.C.B., F.R.S. Educated at Harrow. Joined Punch during Editorship of Sir F. C. Burnand in 1890; commenced "Prehistoric Peeps" series in 1893. Parliamentary Caricaturist to Punch in succession to Mr. Harry Furniss since 1894

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[Photo of Ernest Parke]

Ernest Parke, J.P.

Managing Editor of the Morning Leader and the Star. Born 1860. Was formerly a reporter of the Daily Gazette and Sub-Editor with the Midland Echo, both of Birmingham, and later joined the staff of the London Echo, afterwards going to the Star

Page 133

[Photo of Bernard Partridge]

Bernard Partridge

Journalistic Artist. Born London, 11<sup>th</sup> October, 1861; son of the late Prof. Richard Partridge, F.R.S. Educated Stonyhurst College. Was engaged chiefly in stained-glass designing and decorative painting from 1880 till 1884; thereafter devoted himself to press and book illustration. Joined the staff of Punch, 1891

Page 134

[Photo of Arthur Spurgeon]

Arthur Spurgeon

General Manager of Cassells, Ltd., since 1905. Born 1861. Began journalism on the Norfolk News and Eastern Daily Press, Norwich; became Managing Editor of the Lowestoft Weekly Press, 1885; entered the National Press Agency as parliamentary representative, and became Managing Editor in 1894. Chairman of the Western Newspaper Company

Page 135

[Photo of The Hon. Harry Lawson]

The Hon. Harry Lawson, M.A., J.P., F.J.I.

*Member Executive Committee International Press Conference, 1909*

Eldest son of Lord Burnham, and associated with him in the direction of the Daily Telegraph. Born in 1862, and educated at Eton and Oxford. President of the Institute of Journalists, September, 1909. A Vice-President of the British International Association of the Press. Has represented several constituencies in Parliament since 1885

Page 136

[Photo of J. Alfred Spender]

J. Alfred Spender, F.J.I.

Editor of the Westminster Gazette since 1896. Born 1862. Educated at Oxford. Was editor of the Eastern Morning News, Hull, from 1886 to 1890; went to the Pall Mall Gazette, 1892; and was appointed Assistant Editor of the Westminster Gazette on its foundation in 1893

Page 137

[Photo of John Foster Fraser]

John Foster Fraser, F.J.I.

Special Correspondent, Traveller, Lecturer. Born 1868. First engaged in provincial journalism, and commenced in London in 1892; later, on parliamentary work. Cycled round the world, 1896; later, journeyed through Siberia, and in 1901 crossed Manchuria. Visited United States, Canada, the Balkans, Russia, etc., as journalist, and is special Parliamentary Correspondent of the Standard; occasional contributor to the Reviews

Page 138

[Photo of A. Winton Thorpe]

A. Winton Thorpe

Manager and part proprietor of the London News Agency since 1898; Managing Director since its incorporation as a limited company in 1901. Chairman of the London News Agency Photos, Ltd. Assistant Editor of the Nottingham Daily Express, 1893; Editor of Galignani's Messenger (Paris), 1894; News Editor of the Sunday Times, 1895-97, and of the Sunday Sun, 1898

Page 139

[Photo of John Gennings]

John Gennings

Editor and Manager of the Central News Agency, and Chairman of the Column Printing Company, Ltd. Born at Chichester, 1856. Educated at the Maitland Orphanage,

Haverstock Hill, London, and privately. Served for several years in the Government Telegraph Service. London Correspondent of the Manchester Courier and Edinburgh Courant, 1878-1880; member of Editorial staff Reuter's Agency, 1880-1881; London staff Melbourne Argus, 1882; Night Editor and Foreign Editor Central News, 1883-1906; Editor and Manager of the Central News since April, 1907. Editorial writer for American newspapers and Magazines since 1885. Member of the Institute of Journalists, Savage Club, Press Club

Page 140

[Photo of Wilfred Creyke King]

Wilfred Creyke King

Appointed Secretary of the Exchange Telegraph Company (the well-known News Agency) in 1884, which post he held until 1898, when, on the death of Captain Wm. H. Davies, he became Managing Director

Page 41

[Photo of Sidney James Low]

Sidney James Low, M.A.

Fellow of King's College, London. Educated at King's College School and Balliol College, Oxford (Scholar); Barrister of Inner Temple, Editor of St. James's Gazette, 1888-97; Leader Writer on Standard, 1898, Literary Editor, 1904; Special Correspondent with the Prince of Wales in India, 1905-6, at the Coronation of the King of Norway, 1906, and other important engagements. Alderman of the L.C.C., 1901-5. Author of Dictionary of English History, 1904; The Governance of England, 1904; A Vision of India, 1906; Political History of the Reign of Queen Victoria, 1907; and is a frequent contributor to the Reviews

Page 142

[Photo of H. T. Cadbury]

H. T. Cadbury, Esq.

*A Vice-President of the International Press Conference, 1909*

One of the proprietors of the Daily News.

Page 143

[Photo of Miss Stuart]

Miss Stuart

*A Vice-President of the International Press Conference, 1909*

Original Hon. Secretary of the British International Association of Journalists, 1895-1906

Page 144

[Photo of James Baker]

James Baker, F.R.G.S., F.R.Hist.S.

*Hon. Secretary of the International Press Conference, 1909*

Journalist, Author, Traveller and Lecturer. Born 1847, his father being founder of a West of England publishing firm. Has travelled in Europe, Asia and Africa, and recounted his experiences in various works. Special correspondent for Pall Mall Gazette, Black and

White, The Queen, &c. Was voted Great Silver Medal of Prague for his studies of Bohemia, and in 1908 was made a Knight of the Imperial Order of Francis Joseph. Hon. Secretary of the British International Association of Journalists since 1906

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[Photo of J. H. Warden]

J. H. Warden, F.J.I.

*Hon. Treasurer of the International Press Conference, 1909*

Associated with the Hendon and Finchley Times; original Hon. Treasurer of the British International Association of Journalists, 1897

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Some Famous

War Correspondents

Some Famous

War Correspondents

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Sir William Howard Russell

(no photo)

Sir William Howard Russell, Kt., LL.D., D.Litt., F.R.G.S., F.Z.S.

Veteran War Correspondent. Born 1820. Was Special Correspondent of the Times during the Crimean War, 1854-56, during which period he wrote a famous series of letters depicting the terrible sufferings of the campaign, which led to the first great reform of army field ambulance, military hospitals, and the nursing of the sick and wounded in war, under the noble guidance of Florence Nightingale; the Indian Mutiny, 1857-58; the Civil War in the United States, 1861-62; the Prussian-Austrian War, 1866; the Franco-German War, 1870; South Africa, 1879-80; and Egypt, 1883-84. Visited Egypt and the East in the suite of the then Prince of Wales, 1868, and accompanied him to India as Honorary Private Secretary in 1875-76; and in 1879 visited South Africa with Lord Wolseley. Author of numerous books, including *The Adventures of Dr. Brady*; *Hesperothen*; *A Visit to Chile*; and *The Great War With Russia*. Sir W. H. Russell, who was a Knight of the Iron Cross, a Commander of the Legion of Honour, and an English Knight, was long regarded as the doyen of War Correspondents. He died in 1907

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[Photo of Sir William Howard Russell]

(NO text – Only the photo on this page)

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Sir Henry M. Stanley, G.C.B.

Stanley first rose to fame as a Journalist. He acted as Press Correspondent in the American Civil War and in the Indian Wars of the West.

The New York Herald, in 1868, sent him as War Correspondent with Sir Robert Napier (afterwards Lord Napier of Magdala) throughout the Abyssinian campaign which culminated in the fall of Magdala. He got his news to London a week ahead of all others. He attended the opening of the Suez Canal, roamed the near Eastern Countries, and went through the Carlist and Republican Wars in Spain.

Instructed by Gordon Bennett (New York Herald), Stanley made a remarkable horseback journey through Asia, and led his famous expedition into Central Africa, and found and relieved Dr. Livingstone at Ujiji. He accompanied Sir Garnet (now Lord) Wolseley's Ashanti Expedition to Coomassie. His vivid word-pictures of warfare have probably never been surpassed.

On the death of Livingstone in 1873, Stanley resolved to continue that great man's work, and for the New York Herald and the Daily Telegraph, he led, for more than three years, an exploring expedition through the "Dark Continent." He made many important discoveries, including the southernmost source of the Nile, and Lake Albert Edward; he was first to circumnavigate Victoria Nyanza (an inland freshwater sea of 32,167 square miles) and Lake Tanganyika (14,000 square miles). Explored the upper reaches of the Congo, and traced that mighty river to the sea, victoriously fighting fifty desperate battles in fifty days against fierce cannibal tribes. He solved the great problem of the watersheds of Central Africa, which had hitherto confused and baffled the geographers of the world, many of whom believed that the upper sources of the Congo were the head waters of the Nile.

Stanley made urgent appeals to the British Government to occupy the wasting regions of East, West and Central Africa, including what is now German East Africa and the Great Congo States, and lying across the Cape to Cairo route. All this had been opened up by him and other Englishmen. His entreaties were in vain. Finally, commissioned by the King of the Belgians, Stanley founded the immense Congo Free State, abounding in natural wealth. On his return to the Congo, the cannibal tribes which had fought his exploring expedition received him with respect. He made blood brotherhood with the chiefs, taught their valiant warriors the handicrafts of peace, and opened the way for Christian Missions. Many of these same cannibals, now skilled artisans, are building the Congo steamers.

When Khartoum fell, and Gordon was slain, Stanley responded to the call of the world to rescue Emin Pasha, Gordon's Governor in Equatoria. He led his historic expedition through "Darkest Africa" for three years, relieved Emin, discovered the fabled Mountains of the Moon, and solved the remaining problems of the sources of the White Nile.

To retrieve something from what England had thrown away, Stanley negotiated a treaty for an exchange of territory which secured an all-British route for the Cape to Cairo Railway. This treaty was officially accepted, signed and sealed, but, very soon after, a faint-hearted British Government hastened to abandon it on the demand of the head of a nation which England had gratuitously enriched with vast African possessions.

Although Stanley was challenged and disputed at every step, his discoveries, his facts, and his records have in the end been conclusively verified.

His income was derived exclusively from his work and the proceeds of his writings. He possessed no property in Africa.

At the time of Stanley's first expedition it was estimated that more than a million lives were sacrificed every year in African tribal warfare and slave raiding. Stanley effectually crushed the slave trade, brought peace throughout Central Africa, and opened up immense regions to civilisation and commerce. He died May 10<sup>th</sup>, 1904, and was buried *not* by the side of Livingstone in Westminster Abbey (for the nation has no voice or power to decide) but in the little village churchyard at Pirbright, Surrey.

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[Photo of Sir Henry M. Stanley]

Sir Henry M. Stanley, G.C.B.

D.C.L. (Oxford, Cambridge and Durham), LL.D. (Edinburgh, etc.); Ph.D. University of Halle; Gold Medallist and Hon. Member of the Royal Geographical Society of London, and of the principal Geographical Societies of the World. Grand Cordon of the Medjidie; Grand Commander of the Osmanlie; Grand Cordon of the Order of the Congo; Grand Commander of the Order of Leopold; Star of Zanzibar; Star of Service on the Congo, etc., etc. M.P. for North Lambeth, 1895-1900. Author of *How I Found Livingstone*; *Coomassie*; *Magdala*; *Through The Dark Continent*; *The Congo*, and *Founding The Free State*; *In Darkest Africa*; *My Kalulu*; *My Dark Companions*; etc. Autobiography, edited by Lady Stanley, now in the press

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George Alfred Henty

Journalist, Veteran War Correspondent and Author. Born at Trumpington, Cambridge, in 1832. After being educated at Westminster, he proceeded to Caius College, Cambridge, but before he was able to finish his academic course there, an opportunity occurred for him to gratify his love of adventure which he was unable to resist—the outbreak of the Crimean War. He obtained a post in the purveyors' department of the army and went out to the war, but the rigour of the campaign was too much for his health and he was invalided home. On his recovery, he went to Italy and there organised the Hospitals of the Italian Legion. Prior to that, however, he had acted as a Special Correspondent for the Standard, and for nearly half a century contributed to that journal. As its War Correspondent, he went through the war between Austria and Italy, and through Garibaldi's Italian campaign. With Sir Robert (afterwards Lord Napier of Magdala) throughout his Abyssinian Campaign. Was present at the opening of the Suez Canal. Through the Franco-German War, the Siege of Paris, Carlist Rebellion, and the Servian War. Was with Sir Garnet (now Lord) Wolseley on his Ashanti Expedition to Coomassie. Accompanied the Prince of Wales (now His Majesty the King) on his tour through India. He was also famous as an author of boys' books. He wrote over eighty stories, averaging three or four a year. Among his works were *Out on the Pampas*, *A*

Search for a Secret, The March to Magdala, All but Lost, The March to Coomassie, The Young Colonist, The Young Franc tireurs, With The British Legion, With Kitchener in the Soudan, and The Treasure of the Incas. Mr. Henry died on board his yacht at Weymouth on November 16<sup>th</sup>, 1902

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[Photo of George Alfred Henty]

George Alfred Henty

Veteran War Correspondent and Author

Page 154

Archibald Forbes, LL.D.

Special Correspondent of the Daily News. Born at Boharm Manse, Keith. He was for some years in the Royal Dragoons, but in 1870-71 he went through the great Franco-German struggle as War Correspondent for the Daily News, and afterwards with the Carlists in Spain, in Cyprus, in the Russo-Turkish Campaign, and in the Zulu War of 1879 he distinguished himself by his extraordinary swiftness, tact and audacity in securing accurate information, and by the vivid pen-pictures of stirring events which he contributed to his journal. Forbes delivered numerous lectures in Great Britain, America and Australia, and was the author of the following books: Drawn from Life; Glimpses through the Cannon Smoke; Chinese Gordon; Studies of War and Peace; Napoleon III., etc. Died in 1900

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[Photo of Archibald Forbes]

Archibald Forbes

On the staff of the Daily News for many years

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William Beatty Kingston

For many years Special Correspondent of the Daily Telegraph in Berlin and Vienna. Was War Correspondent during the Franco-Prussian War; with the Army of the Crown Prince in the Black Forest, and with the German Headquarters Staff at Versailles throughout the Siege of Paris. Owing to his close intimacy with Bismarck and Von Moltke, he made his famous *coup* by obtaining for the Daily Telegraph alone the terms of the capitulation of Paris long before they were communicated to other journalists. In like manner Beatty Kingston was in after years frequently privileged to receive and first publish pronouncements and exclusive information from Prince Bismarck. He spoke fluently many Continental languages, and had remarkable knowledge and gifts of music. Author of Monarchs I have Met; Music and Manners; and many other works.

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[Photo of William Beatty Kingston]

William Beatty Kingston

On the staff of the Daily Telegraph from 1866 until his death in 1900



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Melton Prior

Veteran War Artist and Correspondent of the Illustrated London News; son of the late William Henry Prior, draughtsman and landscape painter. He has represented the Illustrated London News in no less than twenty-four campaigns and revolutions, dating back from his first appearance on the battlefield during the Ashanti War of 1873. He saw the Carlist Rising of 1874, and was present in the Herzegovina, Servian, Turkish, Kaffir, Basuto, Zulu and Boer Wars. He was in the Egyptian Campaign of 1882; the Suakim and Nile Expeditions; the Burmese War; the Venezuelan, Brazilian and Argentine Insurrections; the Jameson Raid; the Matabele War; North-West Frontier, India; with Kitchener when he reconquered the Soudan; Cretan Insurrection; and at the Siege of Ladysmith, 1900. In 1875 he went to Athens in the then Prince of Wales' suite, and later travelled with the King of Denmark's expedition through Iceland. Accompanied the Marquis and Marchioness of Lorne on their first visit to Canada, and his pen and pencil have often been employed at State functions like the funeral of the late and the wedding of the present Czar of Russia, the Berlin Conference, the Delhi Durbar of 1902, etc.

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[Photo of Melton Prior]

Melton Prior

Special War Correspondent and Artist of the Illustrated London News

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Charles Williams

War Correspondent. Born in 1838. After being educated at Belfast Academy, his health became indifferent, and he went to Nicaragua to recuperate, subsequently joining an expedition of adventure in that country. On returning to England, he joined the staff of the Evening Standard, and later became its Editor. Subsequently he became Editor and Manager of the Evening News. Then, as a War Correspondent, he followed General Sir Donald Stewart's force on the march from Candahar to Kabul. Went through Lord Wolseley's Nile Campaign for the Relief of Gordon; with the Desert Force of General Stewart; and at the battles of Abu Klea and Metemneh. As War Correspondent to the Daily Chronicle, he was throughout Kitchener's Nile Expedition for the reconquest of the Soudan, and present at the battles of Atbara and Omdurman; whilst during the course of the Boer War he wrote in London the daily diary of the campaign for the Morning Leader. His varied journalistic experiences included a description of the coronation of the present Czar of Russia. He was always a stout upholder of the rights of the Press and of all that concerned the dignity of his profession. He was a good raconteur, having a vast store of sensational experiences, gained as a war correspondent, to draw upon. He was the author of many works, including, How We Lost Gordon, 1885 England's Defence; Hushed Up—a criticism of the South African War; and Life of Sir Evelyn Wood. Charles Williams, who for years enjoyed the personal friendship and confidence of the great Political and Military Chiefs, died in his 67<sup>th</sup> year.

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[Photo of Charles Williams]

Charles Williams

War Correspondent for the Daily Chronicle, and for some time Editor of the Evening Standard and the Evening News

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Bennet Burleigh

Veteran War Correspondent. Born at Glasgow. Fought in the American Civil War, as captured and twice sentenced to death. Acted as War Correspondent for Central News throughout Egyptian Campaign, and present at Battle of Tel-el-Kebir. Then for the Daily Telegraph was in all the Sudan Campaigns. Was with Generals Baker, McNeill and Graham's expeditions against Osman Digna at Suakim, and with Lord Wolseley's Nile expedition against the Mahdi. Crossed the desert from Korti with General Stewart's column, and was present at the battles of Abu Klea and Metemneh. In the Burma war and in other East Indian campaigns. In the second Ashanti Expedition. In the Chino-Japanese Wars. With Kitchener throughout his Nile Campaign against the Khalifa. Present at the battles of Atbara and Omdurman. Throughout the French Campaign in Madagascar and the South African Boer War. With the Somaliland Expedition. Throughout the Russo-Japanese War. Has been sent on many special journalistic missions for the Daily Telegraph to most parts of the Globe. Author of Empire of the East, etc., etc.

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[Photo of Bennet Burleigh]

Bennet Burleigh

On the staff of the Daily Telegraph since 1882

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Frederic Villiers

Yavor in Who's Who. War Artist and Correspondent. Born on April 23<sup>rd</sup>, 1852, and has had an extremely eventful and varied career. He was educated at Guines, Pas-de-Calais, and in 1876 commenced in Servia his long series of journalistic war pictures for the Graphic. In 1877 he was with the Russians in Turkey, and was present at the battles of Saitschar, Alexinatz, and Mount Yavor; with the Russians too he witnessed and depicted the Passage of the Danube, and the fighting at Biela, Plevna, and Shipka. A little later the Afghan War of 1878 took him to Gadamuck and the Bazaar Valley. The next few years were marked by such diverse happenings as a voyage round the world; the battle of Tel-el-Kebir; the coronation of Czar Alexander III.; the fight in the Broken Square at Tamai in 1884; Sir William Hewitt's Mission to King John of Abyssinia; Wolseley's Expedition up the Nile for the Relief of Gordon, during which he was twice wrecked; joined the march of Stewart's heroic column across the Desert; present at the battles of Abu Klea and Gubat in 1885; then back to Europe and across the Bulgarian frontier with the Servian invaders in 1886, to witness the wild struggle at Pirot and the Nishava Valley. Through the Burmese War of 1887. Mr. Villiers then betook himself for a time to more peaceful scenes, and having journeyed across Canada with the Governor-General, went on a lecturing tour through America and the British Isles, and in 1892 visited the Chicago Exhibition. In 1894, as Special Artist for Black and White, New York Herald, San

Francisco Examiner, and the London Standard, he went through the Chinese-Japanese war, and was with the Japanese army at Ping Yang and at the taking of Port Arthur. Four years later he witnessed the triumph of Kitchener at Omdurman and the final downfall of the Khalifa. The South African War and the Russo-Japanese War found him again in the field, and he was the only war artist present at the second siege of Port Arthur. In addition to his journalistic work, Mr. Villiers is the author of several books, including Pictures of Many Wars; Port Arthur; Peaceful Personalities and Warriors Bold; etc.

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[Photo of Frederic Villiers]

Frederic Villiers

War Artist and Correspondent for the Graphic, Illustrated London News, Standard and other papers

Page 166

Edward Frederick Knight

War Correspondent, Journalist and Author. Born 23<sup>rd</sup> April, 1852; eldest son of Edward Knight, Papcastle, Cumberland. Educated at Westminster School and Caius College, Cambridge. Has travelled extensively in South America, Turkey, South Africa and Central Asia. His first experience of soldiering was with the French as a volunteer in 1870. He was Times Correspondent in the Hunza-Nagar Campaign, 1891, throughout which he served as an officer, and was mentioned in despatches. Also in the following wars and expeditions: Matabeleland, 1893-95; Madagascar, 1895; Soudan Campaign, 1896; Greece, 1897; Soudan, 1897-98; Cuba, 1898; Spain, 1899; For the Morning Post, South Africa, 1899-1900. In the South African Campaign he was severely wounded at Belmont, and lost his right arm. Besides his contributions to the Press, Mr. Knight is the author of numerous books, including Albania and Montenegro; The Cruise of the Falcon; The Threatening Eye; The Falcon on the Baltic; The Cruise of the Alerte; Where Three Empires Meet, etc.

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[Photo of E. F. Knight]

E. F. Knight

War correspondent on the staff of the Times for many years, and recently with the Morning Post

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Lionel James

Of old Anglo-Indian stock. Educated in England. Went to India at an early age and became an Indigo Planter in Bengal. In 1895 he accompanied Sir Robert Low's Expedition for the relief of Chitral, as war correspondent for Reuter's Agency and Calcutta Englishman. In the Frontier Indian War of 1906-7 he again went to the front and followed the operations on behalf of the Englishman, Times of India, and The Graphic, acting as war artist as well as correspondent. For Reuter's Agency he accompanied Kitchener during his Nile Campaign and reconquest of the Sudan. In 1898 joined the staff of The Times (London) in whose service he has visited nearly every

country in the world. Acted as special war correspondent for The Times during 18 months of the Boer War. Organised and directed The Times dispatch boats during the Russo-Japanese War. After battle of Laio Yang Mr. James sent notable descriptive cable message filling a whole sheet of The Times. In 1908 accompanied Gen. Sir James Willcocks' Expedition on the Indian Frontier War. Recently in Persia (Tabriz), Turkey, Macedonia, Montenegro, Bosnia, Herzegovina and Servia. Commands a squadron of the King's Colonial Yeomanry. Author of several books under the nom de plume of "Intelligence Officer," including On The Heels of De Wet, Side Tracks and Bridle Paths, etc., etc.

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[Photo of Lionel James]

Lionel James, F.R.G.S.

War Correspondent for The Times and Special Correspondent for Reuter in several campaigns

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George Warrington Steevens, B.A.

War Correspondent, Travelling Journalist and Author. Born December 10<sup>th</sup>, 1869. Educated City of London School and Balliol College, Oxford, graduating B.A. Oxford and London University. On the editorial staff Pall Mall Gazette, 1893 to 1896. Joined staff Daily Mail 1897. Travelled in many countries, contributing special articles on political, social and general subjects. As War Correspondent he went throughout the Greco-Turkish War and Kitchener's Soudan Campaign against the Khalifa. Present at the battles of Atbara and Omdurnan. At the front in the South African War, from the first until his untimely death from typhoid fever at Ladysmith during the siege in 1900. Although very young he ranked high amongst journalists and war correspondents, was accurate in his facts, had extraordinary graphic power and pleasing literary style—notable for his vivid pictures of battle-field scenes. Took most hazardous risks in the firing line when in pursuit of news. Author of Naval Policy; Monologues of the Dead; The Land of the Dollar; With the Conquering Turk; With Kitchener to Khartoum; The Tragedy of Dreyfus; From Cape Town to Ladysmith

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[Photo of George Warrington Steevens]

George Warrington Steevens, B.A.

War Correspondent, Travelling Journalist and Author

Page 172

William Maxwell

War Correspondent and Travelling Journalist. For some time with the Standard. For the Daily Mail he went with Lord Kitchener on his famous march to Khartoum, and was present at the battles of Atbara and Omdurman. Accompanied the Kaiser through the Holy Land and Syria. He sailed with Sir George White for the Cape; was besieged in Ladysmith, and on the relief of the garrison went to Kimberley, then on to Bloemfontein,

and was present with Lord Roberts' army in the series of engagements which led up to the capture of Lydenburgh and Kornati Poort. He saw President Kruger at Delagoa Bay, and returned to Pretoria by Laing's Nek. Arriving in Europe he witnessed and described the funeral of Queen Victoria, the wedding of the Queen of Holland, and the enthronement of King Edward and his Queen in Parliament. He went with the Prince and Princess of Wales on their tour through Australia, Canada, and the Colonies, and later with Mr. Chamberlain on his South African tour 1902-3. Attended the Peace Conference at the Hague. Mr. Maxwell has since accompanied His Majesty the King on his visits to Lisbon, Gibraltar, Malta, Naples and Rome. With the victorious Japanese army under Kuroki, he was present at the battles of Yalu and Sha-ho; and with Nogi at the fall of Port Arthur. With the Prince of Wales on his Indian tour, interviewing the Sultan of Morocco at Fez. Visited Persia and reported on the death of the elder Shah and on the coronation of his son, the late Shah; journeyed through Persia and along the line of the projected German Railway from Persian Gulf to Constantinople. In addition to his numerous journalistic writings Mr. Maxwell is the author of *With the Ophir round the Empire*; *Sixteen Famous Battles*; *With the Japanese from Yalu to Port Arthur*

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[Photo of William Maxwell]

William Maxwell, F.J.I.

War Correspondent and Travelling Journalist; joined the staff of the Daily Mail in 1905. For some years Parliamentary Journalist and London Correspondent for the Manchester Courier

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Charles E. Hands

War Correspondent; began his journalistic career in Birmingham, but subsequently removed to London, where he joined the Star. From thence he went to the Pall Mall Gazette and afterwards to the Daily Mail, for which he has written for some thirteen years past. His first experience as a War Correspondent was gained in Cuba, when he accompanied the United States Army on behalf of the Daily Mail. In this capacity he was at the battle of Santiago, and many other actions. He proceeded to South Africa and was wounded by the Boers, his condition at one time being critical. Another great campaign through which he passed was the Russo-Japanese War, to which he proceeded *via* Siberia to Manchuria, accompanying the Russian forces. Mr. Hands has been in the thick of the revolutionary movement in Russia, and gained as a journalist, the confidence alike of Government officials and revolutionaries. He acted as Special Correspondent during the French operations at Casa Blanca

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[Photo of Charles E. Hands]

Charles E. Hands

War Correspondent and Travelling Journalist for the Daily Mail

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The  
Evolution of Weapons  
For the  
Battle of Life

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[Photo]  
I-Em-Hetep  
Also Called Imhotep, Imouthes Imhotpou  
I-Em-Hetep (“He who cometh in peace”), the earliest known Egyptian deity of medicine and healing, was the good physician of gods and men. There is little doubt that he was a real personage, renowned for his skill in healing, who lived in the reign of Tser of the II. Dynasty, and was afterwards deified

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Historical Exhibition  
of  
Rare and Curious Objects  
Relating to  
Medicine, Chemistry, Pharmacy  
and the Allied Sciences  
To be Held in London 1913  
Organised by, and under the  
Direction of  
Henry S. Wellcome

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[Photo]  
The Affliction of Job  
From a woodcut of the XVI century

Page 181  
Historical Medical Exhibition  
With the object of stimulating the study of the great past, I am organising an Exhibition in connection with the history of medicine, chemistry, pharmacy, and the allied sciences. It is my aim to bring together a collection of historical objects illustrating the development of the art and science of healing, etc., throughout the ages.

The Exhibition will be *strictly professional and scientific in character*, and will not be open to the general public.

For many years I have been engaged in researches respecting the early methods employed in the healing art, both among civilised and uncivilised peoples. It has been my object in particular to trace the origin of the use of remedial agents.

Why were certain substances used in the treatment of disease?

Was their adoption the result of study and practical observation, or was it more usually the result of accident?

Were the alleged virtues purely imaginary and due to some superstitious suggestion?

A consideration of such questions is always of interest and sometimes adds to our knowledge.

There is a considerable amount of information scattered throughout the world in folk-lore, in early manuscripts, and in printed books, but the difficulties of tracing out and sifting the evidence are great. I anticipate that the Exhibition will reveal many facts, and will elucidate many obscure points in connection with the origins of various medicines, and in respect to the history of diseases. It should also bring to light many objects of historical interest hitherto known only to the possessors and their personal friends.

I shall greatly value any information sent me in regard to medical lore, early traditions, or references to antient medical treatment in manuscripts, printed works, etc. Even though the items be but small, they may form important connecting links in the chain of historical evidence.

Interesting information concerning quaint customs practised in connection with the healing art, and items of curious medical lore, may often be gathered from peasants and others living in

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Historical Medical Exhibition

country districts. Medical missionaries, and others in contact with native races, can also obtain particulars of interest in this connection. Every little helps, and, as I am desirous of making the Historical Medical Exhibition as complete as possible, I shall be grateful for any communications anyone may be able to make.

It is my desire ultimately to place before the Profession, in a collected form, all the information obtained.

The success of the undertaking will largely depend upon the co-operation of those who, like myself, are interested in these subjects. The following pages indicate the range of the proposed Exhibition. I trust I may count upon the kind assistance of readers possessing objects of historical medical interest, by lending them, so that the Exhibition may be thoroughly representative. I should also highly esteem information as to any similar objects in the possession of others.

I need hardly say that the greatest care will be taken of every object lent. All exhibits will be insured, also while in transit, if requested, and packing and carriage both ways

will be paid. Unless a desire be expressed to the contrary, the name of each contributor will be mentioned in the catalogue, and placed with the exhibit.

Hints and suggestions in connection with the Exhibition will be much appreciated.

Owing to the magnitude of the work involved in arranging, classifying and obtaining loans of interest from all quarters of the globe, and to my desire to make the Exhibition as complete and comprehensive as possible, a considerable period of time is necessary. The date fixed, therefore, is 1913. Meanwhile, I should greatly appreciate any information which may be forwarded to me in regard to medical traditions, references and illustrations of antient medical or surgical treatment, and also the offer of any loans of suitable objects.

HENRY S. WELLCOME

Snow Hill Buildings

London (Eng.)

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Historical Medical Exhibition

Classification of Exhibits for the

Historical Medical Exhibition

#### Section 1

Paintings, drawings, engravings, prints, photographs, models, silhouettes, sculptures and casts of medical interest:—

(a) Portraits of distinguished physicians, surgeons, alchemists, chemists, apothecaries, pharmacists, nurses, etc.

(b) Pictures of antient British and foreign, medical, chemical, and pharmaceutical institutions.

(c) Representations of important and interesting events in the history of medicine, chemistry, and pharmacy.

(d) Medals, medallions, and coins of medical interest.

#### Section 2

Rare and curious manuscripts, incunabula, books, periodicals, pamphlets and book-plates, on, and connected with, medical, chemical, pharmaceutical and allied scientific subjects.

#### Section 3

Letters, prescriptions, autographs, records of experiments, antient diplomas, licences, instruments, apparatus, and other personal relics of medical, pharmaceutical and chemical interest.

#### Section 4

Curiosities of Medicine:—

(a) Materia medica of all ages. Specimens of antient medicines, remedial agents in all forms.



- (b) Recipes and formulæ of all ages.
- (c) Antient and modern medicine chests—civil, military and naval.
- (d) Votive offerings for health, antient and modern amulets, amuletic medicines, medals, tokens, seals, emblems, charms and talismans. Medical relics of savage and primitive peoples.
- (e) Antient corporate insignia and early diplomas in medicine and surgery granted by British and foreign colleges.
- (f) Rare and curious memorials of medical practice.
- (g) Specimens illustrating medication by animal substances.
- (h) Relics of the influence of astrology on medicine.

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Historical Medical Exhibition

[Photo]

An Antient Method of Treating Headache

The actual cautery, a heated iron rod, was a favourite method of treatment for many diseases in Anglo Saxon times. —*From an MS. of the XII century.*

[Photo]

Treatment for Plague in Mediæval Times

Physician opening a plague bubo,—*From a woodcut of the XVI century.*

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Historical Medical Exhibition

## Section 5

Curiosities of Surgery, Anatomy and Pathology:—

- (a) Relics of antient and mediæval surgery, dentistry and veterinary surgery.
- (b) Antient and mediæval hospital equipment.
- (c) Curiosities of anatomy, and curious anatomical models.
- (d) History and development of instruments and appliances used in surgery and medicine.
- (e) Historical and antient surgical instruments and appliances, etc.
- (f) Instruments used in surgery in prehistoric times and by savage peoples.
- (g) Improvised instruments and appliances that have been used in emergencies (especially those that have led to inventions and discoveries).
- (h) Calculi and other pathological specimens of historical interest.
- (i) Models for obstetrical teaching.

## Section 6

Curiosities of Pharmacy:—

- (a) Quaint pharmaceutical recipes.
- (b) Scales, weights and measures of all ages.
- (c) Antient stills, mortars and pharmaceutical implements.
- (d) Curious bottles, carboys, retorts, alembics, ointment and specie jars, drug vases, pots, ewers and mills, etc.

- (e) Curious laboratory apparatus.
- (f) Antient prescription-books and price lists.
- (g) Antient counter bills, labels, business cards, curious advertisements and trade tokens.
- (h) Antient apothecaries' shop-signs, early shop-fittings and appliances.
- (i) Early pharmaceutical specialities, and specimens of obsolete and strange medical combinations.
- (j) Old travellers' advice books, curious orders, etc.

#### Section 7

Products and preparations, antient and modern, of chemical and scientific research:—

- (a) First specimens of rare alkaloids and other active principles made by their discoverers.
- (b) Rare elements and their salts. etc.

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Historical Medical Exhibition

#### Section 8

Curiosities of Allied Sciences:—

- (a) Antient herbaria.
- (b) Abnormal plant forms.
- (c) Curious magnetic and electrical appliances.
- (d) Curious relics of dental surgery—
  - (1) Early artificial dentures
  - (2) Antient instruments, appliances, etc.
- (e) Optics—
  - (1) Antient spectacles and eye-glasses.
  - (2) Early instruments and appliances used by oculists.

#### Section 9

Historical apparatus associated with important discoveries in medicine, chemistry, pharmacy, electricity, etc.

[Drawing of a man holding a worm]

(Wording at left of drawing “A Cure for Worms!”)

(Wording at right of drawing “A Quack Salver of the XVII Century”)

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Historical Medical Exhibition

#### Section 10

- (a) Objects of interest, antient and modern, connected with preventive medicine, public health, tropical medicine.
- (b) Exhibits illustrative of physiology, anthropology, microscopy, bacteriology, biology and geography.
- (c) Placards, posters, manifestos, declarations concerning epidemic diseases, etc.
- (d) Antient bills of health.

## Section 11

Nursing and Ambulance:—

- (a) Early hospital and general nursing.
- (b) Accouchement chairs.
- (c) Nursery appliances and feeding apparatus for infants.
- (d) Ambulance appliances.
- (e) Antient feeding-cups, bottles, urinals and bed-pans.
- (f) Naval and Military nursing and ambulance appliances and equipments.
- (g) Relics and objects of interest associated with nurses.
- (h) Relics of Foundling Hospitals.

## Section 12

Quackery:—

- (a) Antient and modern pictures, prints, and relics of notorious quack doctors.
- (b) Specimens of quack medicines, preparations and appliances.
- (c) Old bills, placards and pamphlets referring to quack medicines.

## Section 13

Criminology:—

- (a) Curious poisons.
- (b) Historical objects connected with famous poisoning and other criminal cases.
- (c) Curious methods of torture and execution.

## Section 14

History of the nomenclature, causation and treatment of the most important diseases that have afflicted mankind from the earliest periods, for example:—

Smallpox, leprosy, plague, tuberculosis, epilepsy, scurvy, cholera, cancer, malaria, syphilis, king's evil, etc.

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Historical Medical Exhibition

[Drawing of a Faith-Healer and person being healed]

Faith-Healing in Early Times

King Edward healing by touch.—*From an engraving of the XVII century.*

[Drawing of Surgical Treatment]

Quaint Surgical Treatment in the XIV Century

A surgeon of the XIV century applying a bandage to a dislocated jaw.

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Historical Medical Exhibition

Some of these diseases were recognised by the Egyptians, Chinese, Hindoos, Hebrews and others, thousands of years ago, and antient methods of treatment are perpetuated to the present day.

It is my aim to map out as complete a history as possible of these and other specific diseases, and I shall appreciate the assistance of any who may be able to furnish links in the chain of evidence of identification, history, treatment, etc., etc., such as are obtainable from local medical folk-lore, antient manuscripts, and early printed books, etc.

## Section 15

Photography:—

- (a) Objects illustrating the invention and history of photography.
- (b) Early cameras and apparatus
- (c) Daguerreotypes.
- (d) Portraits of the pioneers of photography.
- (e) Original papers and early MSS. on photography.
- (f) Application of photography to medicine.
- (g) Early X-ray apparatus.
- (h) Curiosities of photography.

## Section 16

Adulteration and falsification of drugs, medicines, food-stuffs, fabrics, and of any articles affecting health, or associated with medicine, chemistry, pharmacy and allied sciences.

All communications respecting the Historical Medical Exhibition should be addressed to—

Henry S. Wellcome

Snow Hill Buildings, London, E.C. (Eng.)

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Historical Medical Exhibition

[Drawing of Three Irish Amulets]

Antient Irish Amulets of Gold and Stone used as charms against disease

[Drawing of Thibetan Charm]

Thibetan Charm, or Amulet carried to prevent disease

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The March of Science

“Without a scientific foundation no permanent superstructure can be raised. Does not experience warn us that the rule of thumb is dead and that the rule of science has taken its place; that to-day we cannot be satisfied with the crude methods which were sufficient for our forefathers, and that those great industries which do not keep abreast of the advance of science must surely and rapidly decline?”

*Extract from a speech by H.R.H. The Prince of Wales at the International Congress of Applied Chemistry, London, May 27, 1909*

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[Photo of the Wellcome Chemical Research Laboratories]

Wellcome Chemical Research Laboratories

King Street, London (England)

This institution is conducted separately from the business of Burroughs Wellcome & Co., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

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The Wellcome

Chemical Research Laboratories

Frederick B. Power, Ph.D., LL.D.

*Director of the Laboratories*

King Street, Snow Hill, London (Eng.)

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Awards Conferred Upon The Wellcome Chemical Research Laboratories

<u>International</u>	ONE GRAND PRIZE
<u>Exposition</u>	AND
<u>St. Louis, 1904</u>	THREE GOLD MEDALS

<u>International</u>	ONE GRAND PRIZE
<u>Exposition</u>	ONE DIPLOMA OF HONOUR
<u>Liège, 1905</u>	AND
	TWO GOLD MEDALS

<u>International</u>	
<u>Exposition</u>	ONE GRAND PRIZE
<u>Milan, 1906</u>	

<u>Franco-British</u>	
<u>Exhibition</u>	TWO GRAND PRIZES
<u>London, 1908</u>	

For

Chemical and Pharmacognostical Research

Etc., Etc.

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The Wellcome

Chemical Research Laboratories

Organisation, Equipment and Development

Those who have observed the progress of events in Great Britain during the last decade cannot fail to have been impressed with the remarkable developments and achievements by which it has been attended, especially in the domains of the chemical, physical and biological sciences. The discovery within the past few years of several new elements in the atmosphere, the liquefaction, and even solidification, of gases that were hitherto regarded as permanent, the synthesis of several important organic compounds, the isolation of new substances, and the more precise characterisation of those previously known, together with the perfection of chemical processes and the applications of electricity in chemical and metallurgical operations, are but a few examples of the contributions to knowledge and the industrial progress which have signalled the closing years of the past and the beginning of the new century.

The march  
of science

The spirit of research has, in fact, now become so diffused as to have penetrated into almost every department of human knowledge and activity. With a broader recognition of its usefulness, and even of its necessity, as an element of progress, research is no longer confined to institutions of learning, but has proved to be a quite indispensable factor in its relation to industrial pursuits, as well as for the study of those important problems in medical science which are so intimately associated with the health and happiness of mankind. It has indeed been truly said that “without a knowledge of the constitution or structure of the molecules which go to make up the substances employed as remedies, therapeutics, or the administration of these remedies, can never be an exact science. Thus the research chemist may contribute, though indirectly, his share towards placing medicine upon a real and scientific basis.”

The spirit  
of research

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[Photos of the Laboratories]

One of the Laboratories—First Floor

One of the Laboratories—Second Floor

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Wellcome Chemical Research Laboratories

It is worthy of note that the year 1896 was marked by the establishment in Great Britain of at least three laboratories devoted exclusively to scientific research—namely, the Davy-Faraday Research Laboratory connected with

the Royal Institution, which was formally inaugurated in December, 1896; the new Research Laboratory of the Royal College of Physicians of Edinburgh, which was formally opened in November, 1896; and the Wellcome Chemical Research Laboratories, which were established in the summer of 1896.

British  
Chemical  
Research  
Laboratories

The scope of these laboratories and the directions in which research is conducted in them, naturally differ. The first-mentioned, for example, is more especially of an academic character, and is therefore devoted to somewhat abstract investigations in chemistry and physics; the second is stated to have for its primary object the examination of morbid specimens and material, the study of zymotic diseases, and, in general, bacteriological, physiological and pathological work; while the third, the Wellcome Chemical Research Laboratories, are designed for investigations in both pure and applied chemistry, and, in the latter instance, with special reference to the study of that large class of both organic and inorganic compounds which are employed as medicinal agents in the treatment of disease.

The  
Wellcome  
Chemical  
Research  
Laboratories

The importance of the work which it is the purpose to accomplish in these different, but more or less closely related, departments of science is apparent, and is duly appreciated by those who recognise the deficiencies of existing knowledge.

In response to numerous requests, it has been considered that a brief sketch of the Wellcome Chemical Research Laboratories, descriptive of their organisation, equipment and development would prove of interest to a considerable number who have not the opportunity of inspecting them.

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[Photos of one of the Laboratories and the Combustion Room]  
One of the Laboratories—Third Floor  
The Combustion Room

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Wellcome Chemical Research Laboratories

The first announcement of the plan of Mr. Henry S. Wellcome to establish the Chemical Research Laboratories which bear his name, was made on the occasion of a dinner given by him to Dr. Frederick B. Power, the present Director, at the Holborn Restaurant, London, on the evening of July 21, 1896. The occasion was a memorable one in many respects, for the gathering included a large number of distinguished representatives of the various sections of the scientific world. It was then explained by Mr. Wellcome that the work which he proposed to inaugurate was one which he personally had very much at heart, that it would be carried out on no selfish lines, but would be controlled and dictated with the highest regard for science. It was also made

clear that the new Chemical Research Laboratories were to be entirely distinct from those of the Works of his firm, in which, as heretofore research would also continue to be conducted.

Distinguished  
scientists'  
approval

The expressions of appreciation of the high purpose and the scientific spirit which had actuated Mr. Wellcome in the development of such extended plans for chemical research, as manifested by various distinguished speakers on the occasion referred to, were indeed most auspicious, and fittingly commemorated the inauguration of the work that was to be undertaken.

The first home of the laboratories was in a building located at No. 42, Snow Hill, but it was soon found desirable to make considerable extensions. In order to accomplish this, it was decided that the laboratories should be transferred to a building of their own, of which they should have complete use and possession.

In the heart  
of London

Such premises were secured at No. 6 King Street, Snow Hill, where in a very central part of London, and amid surroundings replete with many of its most interesting historical associations, the laboratories are now located.

The building is a handsome, modern one of Venetian style of architecture, and comprises four stories and a basement. A view of it is represented on *page* 192.

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Wellcome Chemical Research Laboratories

On the ground floor of the building are the office of the Director, and the library, the latter being quite complete for the special requirements. It contains not only a

considerable number of recent chemical and pharmacological works,  
Reference but also complete sets of many journals, such as the *Journal of the*  
Library *Chemical Society*, *Berichte der deutschen chemischen Gesellschaft*,  
the *Chemical News*, *Journal of the Society of Chemical Industry*, etc.

Files of many of the more important chemical, pharmaceutical and medical periodicals of England, America and Germany are also kept. As several very large and complete scientific and technical libraries are also at all times accessible to members of the staff, it is evident that the requirements in this direction are most abundantly supplied. In the library there is also a cabinet containing specimens of the various substances obtained in the course of laboratory investigations, which already form a collection of considerable interest.

The laboratories proper are located on the first, second and third floors of the building, and are represented on *pages* 196, 198. They are similar in their arrangement, are provided with gas and electricity for both illuminating and heating purposes, and completely equipped with all the necessary apparatus and appliances for conducting chemical investigations. There are pumps on each table for filtration under pressure, and special adaptations for vacuum distillations. A separate

Equipment of

connection with the electric mains supplies the current for heating



Laboratories iron plates used for the distillation of ether and other similar liquids. Each laboratory is provided with fine analytical and ordinary balances, which are carefully protected from dust and moisture by tightly-fitting glass cases. There are also telephones on each floor, so that communication between the different laboratories or with the Director's office can be quickly effected.

The basement of the building, which is well-lighted by electricity, contains a combustion furnace and all the appliances for

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Wellcome Chemical Research Laboratories

conducting ultimate analyses, whilst two other furnaces of the most approved construction are available in the laboratories; it also contains a large electric motor for working the shaking and stirring apparatus, drug mill, etc., and a dark-room adapted for polarimetric or photographic work. A view of a portion of the combustion room is shown on *page* 198. In direct communication with the basement are dry and commodious vaults, which afford ample room for the storage of the heavier chemicals and the reserve stock of glass-ware, etc. By means of a small lift, articles may be conveniently transported from the basement to any floor of the building.

Ultimate  
analysis and  
photographic  
work

From this brief description and the accompanying photographic illustrations, it will be seen that the Wellcome Chemical Research Laboratories are unique in their appointments and in the purpose they are designed to accomplish.

It is, perhaps, hardly necessary to explain that some of the problems which engage the time and attention of members of the staff—which comprises a number of highly-skilled and experienced chemists—are of technical application, having reference to the perfection of the chemical products of Burroughs Wellcome & Co. These naturally do not always afford material for publication, and many other difficult researches extend over considerable periods of time.

Original  
work and  
scientific  
publications

Nevertheless, a considerable number of publications, embodying the results of original work contributed to various scientific societies, which are now consecutively numbered, have already been issued. Other investigations in progress will, from time to time, form the subjects of future communications.

Although too short a period has elapsed, since the establishment of these laboratories, to afford much material for a historical retrospect, their present measure of success may be considered to have justified the expectations of their founder and of those who are in sympathy with the work which they aim to accomplish.

Scientific Papers Published by  
The Wellcome Chemical Research  
Laboratories

1. Some new gold Salts of Hyoscine, Hyoscyamine and Atropine
2. The characters and methods of assay of the official Hypophosphites
3. Note on the mydriatic Alkaloids
4. Preparation of Acid Phenylic Salts of Dibasic Acids
5. A new method for the analysis of commercial Phenols
6. The assay of preparations containing Pilocarpine
7. Pilocarpine and the alkaloids of Jaborandi Leaves
8. A new glucoside from Willow Bark
9. The constitution of Pilocarpine—Part I
10. The composition and determination of Cerium Oxalate
11. Researches on Morphine—Part I
12. Observations relating to the Chemistry of the British Pharmacopœia
13. Mercurous Iodide
14. The composition of Berberine Phosphate
15. A contribution to the Pharmacognosy of official Strophanthus Seed
16. The chemistry of the Jaborandi Alkaloids
17. A new admixture of commercial Strophanthus Seed
18. Researches on Morphine—Part II
19. The constitution of Pilocarpine—Part II

20. The chemistry of the bark of Robinia Pseud-acacia, *Linn.*
21. The anatomy of the bark of Robinia Pseud-acacia, *Linn.*
22. A soluble Manganese Citrate and compounds of Manganese with iron

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Wellcome Chemical Research Laboratories

SCIENTIFIC PAPERS—*continued*

23. The chemical characters of so-called Iodo-tannin Compounds
24. The constitution of Pilocarpine—Part III
25. A new Synthesis of *a*-Ethyltricarballic Acid
26. The constituents of the essential oil of Asarum Canadense, *Linn.*
27. Derivatives of Gallic Acid
28. The occurrence of Salicin in different Willow and Poplar Barks
29. The constituents of commercial Chrysarobin
30. The constituents of an essential oil of Rue
31. Methyl b-Methylhexyl Ketone
32. Interaction of Ketones and Aldehydes with Acid Chlorides
33. The Anatomy of the Stem of Derris uliginosa, *Benth.*
34. The Chemistry of the Stem of Derris uliginosa, *Benth.*
35. The Constitution of Pilocarpine—Part IV
36. Preparation and Properties of Dimethylglyoxaline and Dimethylpyrazole
37. The Electrolytic reduction of Pheno- and Naphtho-morpholones
38. Chemical examination of Kô-sam Seeds (*Brucea sumatrana*, *Roxb.*)
39. Comparative Anatomy of the Barks of the Salicaceæ—Part 1
40. The constitution of Chrysophanic Acid and of Emodin

41. The constitution of Epinephrine
42. A Lævo-rotatory modification of Quercitol
43. The constituents of the essential Oil of Californian Laurel
44. Some Derivatives of Umbellulone
45. The constituents of Chaulmoogra Seeds

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Wellcome Chemical Research Laboratories

SCIENTIFIC PAPERS—*continued*

46. The constitution of Chaulmoogric Acid—Part I
47. Chemical examination of Cascara Bark
48. Chemical examination of Gymnema Leaves
49. The relation between Natural and Synthetical Glyceryl-phosphoric Acids
50. Gynocardin, a new Cyanogenetic Glucoside
51. Preparation and Properties of 1 : 4: 5—Trimethylglyoxaline
52. The constitution of Pilocarpine—Part V
53. The constitution of Barbaloin—Part I
54. The constituents of the Seeds of Hydnocarpus wightiana, *Blume*, and of Hydnocarpus anthelmintica, *Pierre*
55. The constituents of the Seeds of Gynocardia odorata, *R.Br.*
56. The Synthesis of Substances allied to Epinephrine
57. Chemical examination of Grindelia
58. Chemical examination of Aethusa Cynapium, *Linn.*
59. Preparation and properties of some new Tropeines
60. The constituents of the essential oil from the fruit of Pittosporum undulatum, *Vent.*

61. The constitution of Umbellulone
62. London Botanic Gardens
63. Chemical and physiological examination of the fruit of *Chailletia toxicaria*
64. Chemical examination of Eriodictyon
65. The Botanical characters of some Californian species of *Grindelia*
66. The relations between natural and synthetical Glyceryl phosphoric Acids—Part II
67. The constitution of Umbellulone—Part II
68. The reduction of Hydroxylaminodihydroumbelluloneoxime
69. The constitution of Chaulmoogric and Hydnocarpic Acids

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Wellcome Chemical Research Laboratories

SCIENTIFIC PAPERS—*continued*

70. The Constituents of the essential oil of American Pennyroyal
71. The constitution of Homo-eriodictyol
72. The interaction of Methylene Chloride and the Sodium Derivative of Ethyl Malonate
73. Chemical examination of the Fruit of *Brucea antidysenterica*, *Lam.*
74. Chemical examination of the barks of *Brucea antidysenterica*, *Lam.*, and *Brucea sumatrana*, *Roxb.*
75. Chemical examination of *Grindelia*—Part II
76. Chemical examination of *Lippia scaberrima*, *Sonder* (“Beukess Boss”)
77. Chemical examination of the root and leaves of *Morinda longiflora*
78. The constituents of the essential oil of Nutmeg
79. Chemical examination of *Micromeria Chamissonis* (*Yerba Buena*)
80. The constitution of Umbellulone—Part III

81. The constituents of Olive Leaves
82. The constituents of Olive Bark
83. Chemical examination of *Ipomœa purpurea*
84. The characters of official Iron Arsenate
85. Preparation of a Soluble Ferric Arsenate
86. The constituents of the expressed Oil of Nutmeg
87. Chemical Examination and physiological action of Nutmeg
88. Some observations regarding “Oleuropein” from Olive Leaves
89. Chemical examination of *Eriodictyon*—Part II
90. The constituents of the bark of *Prunus serotina*
91. The constituents of the rhizome of *Apocynum androsaemifolium*
92. *iso*-Amygdalin, and the resolution of its Hepta-acetyl Derivative

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[Photo of Wellcome Physiological Research Laboratories]

Wellcome Physiological Research Laboratories  
Herne Hill, London (England)

This Institution is conducted separately from the business of Burroughs Wellcome & Co., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm

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The Wellcome  
Physiological Research  
Laboratories

H.H. Dale

H. H. Dale, M.A., M.D.  
Director

Brockwell Hall, Herne Hill, London (Eng.)

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Awards Conferred Upon The  
Wellcome Physiological Research Laboratories

<u>International</u>	ONE GRAND PRIZE
<u>Exposition</u>	AND
<u>St. Louis, 1904</u>	ONE GOLD MEDAL

<u>International</u>	ONE GRAND PRIZE
<u>Exposition</u>	AND
<u>Liège, 1905</u>	TWO GOLD MEDALS

<u>International</u>	
<u>Exposition</u>	ONE GRAND PRIZE
<u>Milan, 1906</u>	

<u>Franco-British</u>	
<u>Exhibition</u>	TWO GRAND PRIZES
<u>London, 1908</u>	

For  
Physiological Research and Preparations  
Etc., Etc.

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The Wellcome  
Physiological Research Laboratories

The activities of the Wellcome Physiological Research Laboratories cover a wide field of therapeutic investigation. The production of Anti-Sera and of bacterial preparations for therapeutic inoculation, and the researches in bacteriology and the mechanism of immunity necessitated by the progressive development of this comparatively new department of therapeutics, have been carried on side by side with investigations into the mode of action and the nature of the active principles of drugs of animal and vegetable origin, and the production by synthesis of substances identical with, or related to, the naturally occurring principles, in chemical structure and pharmacological action. Incidental to this pharmacological work has been the development of methods for controlling and standardising, by physiological means, the activity of potent drugs to which chemical methods of assay are not applicable.

Anti-Sera

A large series of Anti-Sera is now available for therapeutic use, and many have been first produced in these Laboratories. In addition to the antitoxic sera, possessing the power of neutralising the soluble toxins produced in artificial culture by certain organisms, or elaborated in the poison glands of animals, a large series of bactericidal sera has been produced by immunising horses against the actual bacterial substance of such pathogenic organisms as do not excrete their poisons. Early representatives of the two classes were Diphtheria Antitoxic Serum and Anti-streptococcus Serum, and these have maintained their position as the most widely and successfully used sera of their respective classes. These Laboratories were pioneers in the production of these sera in the British Empire.

Pioneer  
products of  
serum  
therapy

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[Drawing of the Wellcome Physiological Research Laboratories]

Bird's-Eye View of the Wellcome Physiological Research Laboratories

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Wellcome Physiological Research Laboratories

Diphtheria antitoxic serum, 'wellcome'

Since the foundation of the Wellcome Physiological Research Laboratories, a number of pamphlets, leaflets and reports dealing with therapeutic sera have been issued in connection therewith.

In the early editions, the origin, history and development of serum therapy were given, as well as an explanation of the meaning of the expression "antitoxin unit." It is scarcely necessary to repeat that the antitoxin unit adopted at the Wellcome Physiological Research Laboratories is the Ehrlich-Behring unit. It is not intended in these notes to take into view any of these aspects, but merely to bring up to date and present, in a succinct form, the progress of the treatment and the results obtained by means of it in more recent years. Diphtheria Antitoxic Serum is standardised by Ehrlich's method. In its earlier form the unit was based upon the power of completely neutralising the local as well as the general effects of the minimum dose of a given specimen of diphtheria toxin which sufficed to kill in 48 hours a guinea-pig weighing 250 grammes. The quantity which just sufficed for this was said to contain one-tenth of a unit. Thus, if 0.01 c.c. just completely protected, the serum was said to contain 10 units per c.c.

Antitoxin  
unit

Samples of serum, carefully standardised by this method in the early days of its introduction, having been preserved, it soon became known that one-tenth of a unit of serum would not protect against ten times the minimal fatal dose of every filtered culture. An explanation of this curious fact has been put forward by Erlich. The filtered culture contains, besides the specific toxin, other bodies, named by him "toxoids," which, while incapable

Toxoids



of causing death in moderate doses, have yet the power of combining with the antitoxin and rendering this inert. The number of minimal fatal doses which one-tenth of a unit of serum will neutralise depends, therefore, on the ratio of toxoids to toxin in the filtrate. For the purpose of testing serum,

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Wellcome Physiological Research Laboratories

therefore, it is necessary to use a filtrate the neutralising capacity of which has been ascertained by careful titration with standard diphtheria antitoxic serum. This standard has remained unaltered throughout, thanks to the fact that some of the earliest serum tested has been carefully preserved.

In May, 1897, a change in the method of standardising serum was introduced by Ehrlich. The presence or absence of a local swelling at the seat of injection is no longer taken as the criterion of neutralisation, but the death or survival of the animal—  
The new method      four days being taken as the limit; and the test dose of filtrate is no longer that which is neutralised by one-tenth of a unit, but that which just suffices to kill the animal within four days when mixed with a whole unit of serum. This change did not introduce any alteration of the standard, because the test dose is ascertained by a series of experiments in which a unit of the standard serum is employed. It has the great advantage of being a purely objective method. For instance, no discrepancies can arise from difference of opinion as to what is to be considered as the smallest local swelling worthy of notice. All errors of measurement, also, are reduced ten per cent.

Statistics of treatment by diphtheria antitoxic serum

Amongst the most valuable English statistics on the subject are those compiled by the Medical Officers of the Metropolitan Asylums Board; and from them may be gathered the following figures: In 1894, only a small number of cases were treated with antitoxin. In 1895, 61.8 per cent., and in 1896, 71.3 per cent., of the total cases were treated with antitoxin, it not having been employed in moribund or hopeless cases, nor in those which were doubtful in nature, or so mild as not to require any specific treatment.

The accompanying table shows clearly a regular percentage decrease in mortality *pari passu* with a regular increase in the percentage of cases treated with antitoxin:—

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Wellcome Physiological Research Laboratories

Cases of Diphtheria Treated in the Hospitals of the Metropolitan Asylums Board

	Antitoxin-treated cases.	Mortality.
Year	Per cent.	Per cent.

			of all cases			of all cases
1888-95	...	...	—	...	...	28.5
1894	...	...	—	...	...	29.6
1895	...	...	61.8	...	...	22.5
1896	...	...	71.3	...	...	20.8
1897	...	...	80.2	...	...	17.5
1898	...	...	81.4	...	...	15.5
1899	...	...	87.8	...	(not quite)	14.0
1900	...	...	88.4	...	...	12.2
1901	...	...	86.5	...	...	11.1
1902	...	(not quite)	88.0	...	...	11.0
1903	...	...	89.2	...	...	9.69
1904	...	...	85.5	...	...	10.0
1905	...	...	88.4	...	...	8.2
1906	...	...	84.0	...	...	8.99
1907	...	...	91.2	...	...	9.6

The Colchester epidemic in the summer of 1901 furnishes evidence of especial weight (*Journal of Hygiene*, April 1, 1902). Up to a certain date, the cases in hospital were treated with antiseptic sprays. These in all amounted to 81, of whom 21 died, giving a case mortality of 25.9 per cent. After this date, all the cases were treated with antitoxin without antiseptic spray, and of 119 so treated, 7 died. The case mortality of this group was therefore 5.8 per cent.

The  
Colchester  
epidemic

The inference that antitoxin thus saved many lives is much strengthened by the fact that of 37 cases treated at home before the date indicated, 10.8 per cent. died, whilst of 48 cases treated at home after this date, 14.5 per cent. died. This concurrent evidence clearly shows that the severity of the disease was not declining at the time when such good results were being obtained at hospital with antitoxin.

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Wellcome Physiological Research Laboratories

Curative and prophylactic doses of diphtheria antitoxic serum

Experiments on animals have shown that the amount of antitoxin which is necessary to save life increases at a rapidly accelerating rate according to the length of time which elapses between the injection of the diphtheria virus and the administration of the curative serum, and this is amply confirmed by the results of experience in hospitals. Thus Wernicke and Behring, having determined the amount of antitoxic serum necessary to save from death a guinea-pig which had immediately before been injected subcutaneously with a lethal dose of diphtheria toxin, found that ten times this amount was required to effect a cure if this administration was deferred until eight hours after the injection of the toxin; whilst twenty-four hours afterwards, fifty times the initial quantity was necessary.

Animal  
experiments

The efficacy of antitoxin given early in the disease, and the urgent necessity of beginning the treatment at the earliest possible moment, are well illustrated by the following statistics from the Brook Hospital, published in the Metropolitan Asylums Board Report for 1902:—

Day of the disease on which treatment commenced	Mortality per cent.					
	1897	1898	1899	1900	1901	1902
First	0	0	0	0	0	0
Second	5.4	5.0	3.8	3.6	4.1	4.6
Third	11.5	14.3	12.2	6.7	11.9	10.5
Fourth	19.0	18.1	20.0	14.9	12.4	19.8
Fifth	21.0	22.5	20.4	21.2	16.6	19.4

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Wellcome Physiological Research Laboratories

The serum from normal horses may cause rashes and rise of temperature in susceptible individuals, but apart from this the only limit to the administration of antitoxin is the bulk of the fluid in which it is contained. Therefore a large dose should be given at the earliest possible moment, whenever there is reason to suspect diphtheria; and in cases which progress unfavourably, the treatment may be repeated in about six hours, giving at least double the initial dose.

Limit of  
dose

Repeated  
injections

Far less, however, is to be expected from repeated injections at intervals than from one full dose given at the outset of the attack. In no case should either the administration of antitoxin or the repetition of the dose be delayed until the result of a bacteriological examination has been made known.

Curative Dose.—The dose for a case of moderate severity should not be less than 2000 units, and in severe cases 4000 units at least should be given at once, and larger doses are recommended by many authorities. These doses should be given irrespective of age, because diphtheria is very fatal to young children. If any difference were to be made, adults would have

Dosage  
irrespective  
of age

the smaller doses, as the prognosis in diphtheria improves with the age of the patient.

As the question of the keeping-quality of sera is frequently raised, it may be stated generally that, provided they are kept in a cool place at a fairly constant temperature, and protected from light, these sera may be relied upon to remain practically unaltered for at least a year from the date of issue. They are issued in phials hermetically-sealed in the blow-pipe flame, a method which greatly favours this result.

Keeping-  
quality of  
serum

Prophylactic Dose.—Protective injections, of at least 1000 units, may be administered to the rest of the family whereof one member has been attacked with diphtheria. It must be borne in mind, however, that the prophylactic action gives only a temporary protection

Prophylaxis

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[Slides of staphylococcus pyogenes and bacillus tuberculosis.]

Staphylococcus pyogenes  
Magnification 1000 diam.

Bacillus tuberculosis  
Magnification 1000 diam.

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against attack to the person so treated, the protection thus conferred lasting probably about three weeks at the most. The whole of the contents of one phial may be injected in each case. It should be carefully noted that, when once a phial is opened, it is highly undesirable, owing to risk of contamination, to reserve a portion of the contents for a future occasion. It should all be used at once on one or more patients.

Bacteriological diagnosis of diphtheria

The injection of antitoxin at the earliest possible moment in the course of the disease may be a matter of such importance to the patient that this should be done on the clinical evidence alone where the diagnosis is doubtful; but immediate steps should be taken to confirm the diagnosis by bacteriological methods.

On serum eruptions

In some cases, the administration of a curative serum is followed by rashes and transitory rise of temperature; occasionally by pains and swellings in the joints. These accidents have been shown to be also caused by normal horse serum, so

that they are not to be attributed to the anti-bodies in the serum.      Normal horse  
The introduction of more highly potent serum, allowing a      serum  
diminution of the bulk to be injected, has rendered these  
complications less frequent. They arise for the most part during convalescence, and do  
not appear to have resulted in any case in death, though they have doubtless sometimes  
retarded recovery.

The following account of this subject, by Dr. Arthur Stanley, is quoted from the *British Medical Journal*, February 15, 1902. It deals with 500 cases of diphtheria at the North-Western Hospital of the Metropolitan Asylums Board, all of which were treated with antitoxin: "The diagnosis of doubtful cases was

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[Slides of streptococcus erysipelatis and bacillus coli communis.]

Streptococcus erysipelatis  
Magnification 1000 diam.

Bacillus coli communis  
Magnification 1000 diam.

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verified by bacteriological examination. The total number of deaths in the series was 80, a death-rate of 16 per cent. The antitoxin was injected in quantities usually of 4000 Behring antitoxin units immediately after admission, but varied from 1000 to 30,000 units according to the severity of the case and the time of admission after onset. No constant relation between the quantity of antitoxin given and the frequency of eruption was noted, but in one case,      Different  
where antitoxins from two different sources were injected      sources of  
at the same time, two separate antitoxin rashes were observed;      antitoxin  
the first occurring ten days, and the second fourteen days, after the giving of the antitoxins. No special sources of antitoxin were found to cause a pre-ponderating number of eruptions, and the eruptions occurred throughout the two years I was working with diphtheria.

"Skin eruptions appeared in about a fourth of the cases. The period of onset was usually during the second week after the giving of the antitoxin. The eruption met with was not so peculiar as to be pathognomonic, but was sufficiently marked, especially in relation to the general symptoms, as to constitute a distinct type.

"There may be a little desquamation after severe and prolonged erythemata, but there is rarely any confusion between true scarlet fever occurring in the course of diphtheria and eruptions produced by antitoxin.

“The general symptoms, beyond a rise of temperature of some 3°F and its accompanying malaise, are not marked. Pains in the joints have been frequently described, but were not observed in one of these 500 cases. This result may have been due to the cases being chiefly among children. The only marked case in which pain was present was that of a girl of 13, who had frontal headache and lumbar pain extending down the thighs. She had a marginate erythematous eruption, and the temperature rose to 101°F.

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“Transient early erythematous blushes, and also urticaria, often occur soon after the injection of antitoxin, but these may be generally considered to be of traumatic origin, and not to be related to any specific property of the antitoxin. The area of skin, before injection, was sterilised with soap and carbolic lotion, and the injection syringe was boiled before each injection. No abscess at the seat of injection occurred.

“The occurrence of an antitoxin eruption during the course of a case of diphtheria did not appear to influence the prognosis seriously, though it cannot but be held that any febrile disturbance of the heart would tend to have a harmful effect. No case, however, was observed where fatal heart-failure was precipitated by the occurrence of an antitoxin eruption.”

A long experience of reports received at the Wellcome Physiological Research Laboratories, leads to the conclusion that idiosyncrasy of the patient is more responsible for the varying severity of the eruption and other symptoms attributable to serum than the use of serum from different horses.

It seems probable that a considerable mitigation of the inconvenient symptoms which are liable to follow the use of serum will be rendered possible, in the case of Diphtheria Antitoxic Serum, by the methods of fractionation and purification of the antitoxic globulins which are coming into use. Not only by this treatment are those proteins of serum removed, which, though devoid of antitoxic value, play a large part in the production of the unpleasant after-effects, but a considerable concentration of the antitoxic element is rendered possible. The reduction in volume of the necessary injection thus effected is a great practical advantage.

Several observers have found the administration of calcium salts efficacious in preventing or dispelling serum-rashes.

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An interesting light has in recent years been thrown on the susceptibility of some patients to the toxic action of serum, by the observation that the injection of a small quantity of horse-serum into an animal renders it liable to fatal intoxication by a large dose given upwards of ten days later. Goodall has shown (*Journal of Hygiene*, 1907) that an injection of serum may render a patient liable to severe constitutional effects when another injection is given even two years later; and interesting cases are on record in which patients have had progressively more severe symptoms as a result of three or more successive injections of serum separated by intervals of years. It must be borne in mind, however, that cases of natural abnormal susceptibility to other substances are not uncommon. Eggs, strawberries, shell-fish, etc., produce in certain individuals, when taken in comparatively minute quantities, symptoms very similar to the serum rashes.

Super-  
sensitivity

### Antivenene

This serum continues to maintain its claim to be a trust-worthy remedy for snake-bite, if injected in large quantity, not later than three or four hours after the bite. A case reported in the *Lancet* of January 5, 1901, illustrates the efficiency of fresh antivenom serum, even after the appearance of general symptoms, and in the absence of any local treatment except sucking the wound. The serum was injected into each flank, about 3 ½ hours after the bite.

Antivenene

‘Wellcome’ Brand Antivenom Serum is standardised against the venom of the Cobra and Russell Viper (Daboia), and is the result of immunising horses against these and venoms from representatives of other genera, including the Krait (Bungarus) and Sea-snake (Enhydrina). It is, therefore, a polyvalent antivenene, which alone could be regarded as of more than local applicability.

The local treatment of snake-bite is very important, and depends upon the fact that “it is possible, after even half an

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hour or more from the time of the bite, a considerable portion of the venom may still be unabsorbed at the site of the injection, and so may still be destroyed” by suitable means (*Lancet*, February 6, 1904, *page* 355).

The first thing to do in every case where the position of the bite makes it possible, is to place a ligature (rope, cord or handkerchief) round the limb between the wound made by the fangs of the snake and the body, and wash the wound thoroughly, encouraging it to bleed.

The wound should then at once be bathed with a fresh solution of chloride of lime (1/60 in distilled water), or with a 1 per cent. solution of chloride of gold, with the object of

destroying *in situ* any venom which may remain unabsorbed (Calmette, Institut Pasteur de Lille).

Or a small incision may be made through the wound, and pure crystals of permanganate of potassium, moistened with a little water, rubbed into it. (Captain L. Rogers, I. M. S., quoting Brunton, Fayrer and others. *Lancet*, February 6, 1904, *page 354*).

The successful carrying out of either of these procedures depends upon an intelligent appreciation of the exact position of the poison, which may be indicated by a local extravasation of blood-stained serum.

The following important considerations should be specially noted:—

In severe cases, and in others where some time (two or three hours) has elapsed after the bite, the serum should, if possible be injected intravenously.

The dose should not be less than 10 c.c., whether injected subcutaneously or intravenously. The snake-bite should be very carefully cleansed and disinfected before injecting the serum.

“Artificial respiration may . . . be of great value while medical aid or antivenene is being sent for. . . .”

*Lancet*, February 6, 1904, *page 352*.

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#### Anti-tetanus serum

This serum, like anti-diphtheria serum, is antitoxic in its action. Although it may be stated that some cases of this disease have been distinctly benefited by its administration, in many others the serum has failed. A consideration of the nature of the disease shows why this is so, and why, even more than in diphtheria, it is necessary to commence the treatment at the earliest possible moment.

Anti-tetanus  
serum

Tetanus is a disease caused by the action of the toxin of the bacillus tetani upon the central nervous system; the toxin as in the case of diphtheria, being produced in some local lesion, the seat of the growth and multiplication of the specific organisms. In tetanus, the toxin makes its way to the motor ganglion cells, partly by way of the nerves in connection with the affected part, and partly by way of the blood.

Unfortunately, the convulsive stage of tetanus is an indication not of the commencement of the disease, as is the appearance of a membrane in diphtheria, but of a comparatively advanced stage of the disease, and of the occurrence of serious damage to the nervous



system. The remedy should therefore be administered immediately on the manifestation of any distinct symptoms, possibly tetanic, such as difficulty in opening the mouth, stiffness in the neck, or the onset, some days after the accident and without obvious cause, of an acute pain at the point of injury; and in view of the fact that the tetanus bacillus is localised and restricted to the seat of infection, attention is called to the advantage, in cases of punctured wounds, of excising freely and thoroughly the tissues around. The curative dose of anti-tetanus serum may vary from 50 c.c. to 100 c.c., in one dose or more but, as a prophylactic in the treatment of wounds contaminated with dust, dirt, soil, etc., a smaller Dose dose of 10 c.c. is said to be sufficient. This protection, however, does not persist longer than five or six weeks. It should be remembered in considering doses, that it is impossible at present to state

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definitely the quantity of serum necessary to meet a given case, for so much depends on the severity of the attack, and the stage at which treatment is begun. It is, therefore, better to give a large dose at the commencement. The old medicinal treatment should not be neglected.

The records of 98 cases treated by serum were collected by Weischer (*Münch. Med. Woch.*, Nov. 16, 1897). Of these, 41 died, the mortality per cent. thus being 41.8. The serum has been injected directly into the substance of the brain with success, and it has been claimed that this method gives the best results. A full account of this, giving details of the operation, may be found in the *British Medical Journal*, Jan. 7, 1899.

Whilst as a curative agent, the serum has thus proved a relative failure, it has proved a most valuable prophylactic in the case of wounds infected with soil in districts where tetanus abounds.

### Bactericidal Sera

**Anti-streptococcus Serum.**—The disappointing results which were obtained in many cases in the early days of the preparation of anti-streptococcus serum were doubtless due in part to the absence, at the time, of any adequate classification of the streptococci, with the result that a serum prepared against one strain of streptococcus was tried for a wide range of different infections, which would now be recognised as due to specifically distinct organisms.

**Polyvalent Anti-streptococcus Sera.**—A prolonged and serious attempt has been made in conjunction with clinical observation and laboratory tests to obtain specific polyvalent anti-streptococcus sera. Cultures were obtained from as many cases as possible of a particular disease, taken from such situations and under such precautions as to make it probable that the organisms were causally associated with the disease. The following are details of the origin of the organisms used in producing some of the 'Wellcome' Sera:—

**Anti-streptococcus Serum (Puerperal Fever).**—Cultures from 26 cases, mostly fatal, obtained from the uterus or the spleen.

**Anti-streptococcus Serum (Erysipelas).**—Cultures from 3 cases.

**Anti-streptococcus Serum (Scarlet Fever).**—Cultures from 9 cases, several of which were fatal, obtained from the blood, the spleen and the knee-joint.

**Anti-streptococcus Serum, Rheumatism (Micrococcus Rheumaticus).**—Cultures from 6 cases, obtained from the knee or shoulder-joint.

**Anti-streptococcus Serum, Polyvalent.**—The horses are immunised against all the strains mentioned above, and, in addition, with strains obtained from 2 cases of Angina Ludovici and 6 cases of Ulcerative Endocarditis (from blood cultures obtained during life), and with 10 strains of Streptococcus Pyogenes from Pyæmia, Mammary Abscess, Acute Peritonitis, Suppurative Arthritis, etc.

This “shot-gun” serum has found more extended application than any of those prepared from organisms associated with a particular clinical picture, and the recorded cases in which its use has been attended with beneficial results are now too numerous to leave much room for doubt of its efficacy in streptococcal infections.

A much more scientific classification than that based upon the symptoms of the case from which the organism originated has been made possible by Gordon’s classification of the streptococci in accordance with their habit of growth in culture media containing various sugars. A serum has been prepared by immunising against nine strains of streptococci isolated from various cases and all identified by their behaviour when grown in sugar media as belonging to Gordon’s Pyogenes group IIb. The result of the use of this serum in an acute case of streptococcal infection from a post-mortem wound was such as to encourage belief in its value.

[Slides of bacillus diphtheriæ and bacillus typhosus.]

Bacillus diphtheriæ  
Magnification 1000 diam.

Bacillus typhosus  
(Stained to show flagella)  
Magnification 1000 diam.

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A point to be specially borne in mind is that all cases of puerperal fever, spreading inflammation of the skin or subcutaneous tissues, are not necessarily associated with the presence of actively growing streptococci. They may be due to some quite different organism, and so would not be benefited by injections of anti-streptococcus serum.

Septicæmia  
due to  
bacillus or  
diplococcus

The importance of ascertaining by bacteriological tests the kind of organism at work in all such cases is thus manifest.

Other bactericidal sera which have been prepared at the Wellcome Physiological Research Laboratories are:—

**Anti-Anthrax Serum.**—A serum prepared by Sclavo has been used with success in cases where no surgical interference was undertaken. It has been prepared at these Laboratories by injecting horses and asses with killed broth cultures of virulent *Bacillus anthracis*.

**Anti-coli Serum.**—In the preparation of this 20 strains of *Bacillus Coli* are used, obtained mostly from the peritoneum in fatal peritonitis and the uterus in puerperal fever due to *B. coli*.

**Anti-staphylococcus Serum.**—This is also a polyvalent serum, cultures of staphylococcus albus, aureus, citreus and hæmorrhagicus, 15 in all, and all obtained from pus, being used in its preparation.

**Anti-dysentery Serum.**—Prepared by injecting killed cultures of Shiga's, Flexner's and Kruse's bacilli, 6 strains in all being used.

**Anti-gonococcus Serum.**—This is prepared from strains obtained from urethritis and gonorrhœal conjunctivitis, and is described as having given good results in the acute stage of the disease.

**Anti-meningococcus Serum.**—Four strains of the diplococcus of Weichselbaum are used.

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[Slides of micrococcus rheumaticus and bacillus anthracis.]

Micrococcus rheumaticus  
Magnification 1000 diam.

Bacillus anthracis  
Magnification 1000 diam.

### Endotoxins and Anti-endotoxins

Endotoxin is the name given to the toxins contained within micro-organisms in contradistinction to toxins obtained in culture filtrates. Various methods of obtaining endotoxins have been used, but the best is probably that devised by the late Allan Mcfadyen. He found that organisms when subjected to a very low temperature, such as that of liquid air, still retain their vitality, so that, when again brought to the normal temperature, they are found not to have suffered in any essential respect. At this low temperature, the organisms are readily broken up by grinding. Extracts from this material are obtained in dilute solution of caustic alkali. An elaborate grinding apparatus was devised by Mcfadyen and Rowland for this purpose. The juice so obtained is filtered through a Berkefeld filter to remove the uninjured organisms. The quantity of dissolved material is approximately shown by the amount of precipitate obtained on acidulating with acetic acid.

Method of  
preparation

Anti-endotoxins are obtained by injections of endotoxins into animals in a similar manner to that used for other anti-sera. Mcfadyen, in the case of typhoid, claimed to have prepared, by this means, a very much stronger anti-serum than has been found possible by the injection of the intact organisms. He also prepared an anti-endotoxic cholera serum by injecting goats intravenously. His results show a very high degree of both antitoxic and bactericidal power in the sera so obtained.

Recent clinical trials of an anti-typhoid serum prepared at the Wellcome Physiological Research Laboratories by Mcfadyen's method have given very promising results.

Bacterial vaccines.

While it seems clear that, even with the methods of preparation which have as yet been fully tried, the anti-bacterial sera have a certain value, it cannot be denied that they have not, in the same degree as the antitoxic sera, fulfilled the early hopes

of their efficacy. Meanwhile, the technique for estimating phagocytic activity introduced by Leishman, and its application and development at the hands of Wright and others, has given a noteworthy impetus to the method of actively immunising the patient against the organism attacking him, by injection of very small doses of a killed culture of the same organism. The new method of controlling the effect of an injection, by determination of the "opsonic index," has not only given a stimulus to the extensive use of vaccination with killed cultures in various chronic suppurations and localised inflammations; it has also, to a remarkable extent, reinstated in the confidence of the

Opsonic index                      medical world the tuberculin (T. R.) of Koch, which has been brought into discredit by the unfavourable results of its early application, in doses which, as the new methods of control indicate, were much too large for safety or benefit. While Wright's opsonic method has undoubtedly been largely responsible for the revival of interest in specific inoculation and the widening of its scope, its complicated and specialised technique has probably had a deterrent effect on the spread of the method in general practice. At present there is a perceptible tendency to doubt the need for the elaborate and difficult opsonic determination, and its adequacy as a control. If this movement continues in the direction of reliance on constitutional indications or a more simple phagocytic determination, it will undoubtedly lead to a wider use of these so-called bacterial vaccines.

Vaccines are usually prepared by suspending in saline solution organisms grown on nutrient agar or some such solid medium, and heating for half an hour at 60°C. They are standardised according to the number of micro-organisms present in 1 c.c. The counting may be done by the absolute method, *i.e.* direct counting of a known dilution in a Thoma-Zeiss apparatus by a method similar to that employed in enumeration of red blood corpuscles. This is a tedious process, and it is more usual to employ Wright's or Harrison's method. Wright's method is to mix the vaccine with fresh blood in known proportion, make a film

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of the mixture, stain and then compare the total number of red corpuscles in a large number of fields with the number of organisms in the same fields. If the number of red blood corpuscles per cubic mm., the proportion by volume of blood and vaccine, and the ratio of the counts are known, it is a matter of simple calculation to determine the number of organisms present per c.c. of vaccine. The objection to this method is that many organisms may be dissolved by the bacteriolysins of the blood plasma. To overcome this difficulty, Harrison washes the blood corpuscles by several centrifugalizations with citrated saline to remove all the blood fluids, determines by a Thoma-Zeiss count the number of cells present in the suspension of red corpuscles in saline, and then proceeds as in Wright's method. It is of considerable value to control the counts by means of the dried weight, which, for each organism used, bears a fairly constant ratio to the bacterial count.

Methods of  
standard-  
isation

Typhoid vaccine is used only as a prophylactic, and not at present as a curative, agent in typhoid fever. To secure immunisation, two doses are given. The first dose consists of 0.5 c.c. of vaccine, equivalent to 500 million bacteria. The second, given ten days later, is 1 c.c., equivalent to 1000 million bacteria.

After the first, and, to a much smaller degree, after the second inoculation, local and constitutional symptoms may occur, the severity of the local symptoms usually varying

inversely as that of the constitutional. The local symptoms, present at the site of injection, are redness, swelling, pain and tenderness.

The following vaccines have been successfully employed therapeutically:—

### **Staphylococcus Vaccine, Mixed**

Containing *Staphylococcus pyogenes aureus*, *albus* and *citreus*.

This vaccine may be employed in various staphylococcic infections, such as pustular acne, furunculosis, carbuncle, sycosis, blepharitis and localised abscesses.

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The initial dose is usually 500 million organisms. A second dose may be given in a week's time, or, if the constitutional effects of the first dose have been slight and evanescent, 1000 million organisms may be deemed necessary. Many authorities recommend the use of much smaller doses.

### **Staphylococcus Vaccine, Aureus**

Containing *Staphylococcus pyogenes aureus*.

This vaccine is employed in the treatment of acne and sycosis. It should only be used when the infection has been shown to be due to *Staphylococcus aureus* alone.

The dose usually employed is similar to that in the case of Staphylococcus Vaccine, Mixed.

### **Gonococcus Vaccine**

Containing *Micrococcus gonorrhææ*.

This vaccine may be used in the chronic and later stages of gonorrhœa, in gleet and gonorrhœal prostatitis, and also in such generalised infections as gonorrhœal arthritis. Good results have also been obtained in the acute stages of gonorrhœa.

The initial dose recommended by different authorities varies considerably: in some cases only 5 million organisms, and in other cases as many as 250 million are injected as an initial dose. Subsequent dosage is regulated by the constitutional effect. In infection of a delicate organ such as the iris, very small doses are required.

### **Streptococcus Vaccine, Polyvalent**

Containing over 60 strains of streptococci obtained from the following sources: erysipelas, scarlet fever, puerperal fever, rheumatic fever, septicæmia, angina, pneumonia and ulcerative endocarditis.

This vaccine may be used in all forms of localised or generalised streptococcic infection, *e.g.* abscesses, septicæmia, pyæmia, otitis media, endocarditis, peritonitis of streptococcic origin, puerperal septicæmia, and erysipelas.

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The dose is from 20-50 million organisms, and it may be administered at intervals of from one to three weeks, according to the reaction produced.

### **Bacillus Coli Vaccine**

Containing the *Bacillus coli communis*.

This vaccine may be used in all forms of coli infection of the bladder, ureters, kidneys and peritoneum; in appendicitis due to the bacillus coli; in mucous colitis, and in coli infection of the uterus and gall bladder.

The initial dose is 5-15 million organisms, which may be repeated, or increased, according to the reaction produced, from 2 to 10 days later.

### **Pneumococcus Vaccine**

Containing various strains of the *Diplococcus pneumoniae* (Weichselbaum).

This vaccine is used in pneumococcic infections of all kinds, pneumonia, empyema, pericarditis, endocarditis, septicæmia, meningitis and pneumococcic infections of joints.

The usual dose is 10-50 million organisms, which may be repeated, according to the reaction produced, every 36 or 48 hours.

### **Acne Vaccines**

Recent research has shown that acne is primarily due to infection by a micro-organism known as the Acne Bacillus. In the early stage, when the eruption is papular in character, a bacteriological examination of the comedones or "black-heads" shows a pure acne bacillus infection. Later on, infection by the staphylococcus occurs, giving rise to the acne pustule.

A vaccine is chosen for treatment, therefore, in accordance with the stage and nature of the infection.

### **Acne Bacillus Vaccine**

This is intended for the treatment of the papular form of acne. In this form comedones are abundant, but suppuration has not yet occurred. There is no febrile reaction after the injection of this vaccine, but if the dose be excessive a prolonged negative phase results, in which a fresh crop of

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[Graphs]

Temp.	At time of injec- tion	After 9 hours	After 12 hours	After 15 hours	After 18 hours	After 21 hours	2 <sup>nd</sup> day	3 <sup>rd</sup> day	4th day
Temp	100.0		102.6	102.4	101.8	101.6	100.6	100.0	
Swelling			2"x3" well defined				3"x5"	4"x8"	De- creas- ing

Reaction to mullein of a healthy horse immunised against Diphtheria toxin. The horse was subsequently killed and the absence of glanders confirmed by post-mortem examination

Temp.	At time of injec- tion	After 9 hours	After 12 hours	After 15 hours	After 18 hours	After 21 hours	2 <sup>nd</sup> day	3 <sup>rd</sup> day	4th day
Temp	99.8		104.2	104.2	104.0	104.0	103.0		
Swelling			4"x4" sharply defined			In- creas- ing rapidly	Very large		

Reaction to mullein of a glandered horse. (Animal destroyed on 3<sup>rd</sup> day).

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acne papules appears. However, these papules disappear by subsequent injections.

### **Acne Vaccine, Mixed**

This is for use in ordinary cases of acne, usually characterised by the presence of comedones and pustules. A bacteriological examination of such cases shows a mixed infection by the acne bacillus and the staphylococcus (*aureus*, *albus* or *citreus*).

Dose. —The initial dose is 4 or 5 million acne bacilli with or without staphylococci, according to the nature of the case. Subsequent dosage is regulated by the local effect. Larger doses than 10 million acne bacilli can rarely be tolerated.



In the pustular and furuncular forms of acne without comedones, Staphylococcus Vaccine, Mixed, is used.

### **Tubercle Vaccine (Human or Bovine)**

An emulsion of killed tubercle bacilli of human or bovine origin.

Treatment should commence with a dose of 1 c.c. of emulsion containing 0.0001 mgm. dried tubercle bacilli, increasing to 0.0005 mgm., or even more, according to the indications of the opsonic index, or the clinical symptoms.

### **Mallein and tuberculin**

Mallein is a bacterial filtrate used in the diagnosis of glanders. It is prepared from cultures of the organism causing glanders (*Bacillus mallei*) which have been grown for about six weeks on bouillon containing glycerin, sterilised by heat and filtered. A small quantity of some antiseptic, such as phenol, is added as a preservative. When injected under the skin of a normal horse, mallein produces little or no apparent effect, but should the horse be suffering from glanders a large swelling forms at the seat of injection, and this is usually accompanied by a rise in the temperature of the animal.

Recent investigation at these Laboratories (Südmersen and Glenny, *Journal of Hygiene*, 1908) has shown that many non-glandered horses, if they have been immunised against other

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bacterial products, give a reaction to mallein in some ways similar to that given by glandered animals.

The size of the swelling produced in such cases appears to depend on the degree of immunity. Thus, in the case of a group of horses injected with diphtheria toxin, 6 of which were highly immune, all gave large local reactions; out of 7 moderately immune, 4 gave large swellings; and in 4 horses in which the serum had a low antitoxic value, only small mallein reactions were produced. The local swelling obtained in such healthy, immune horses differs very markedly from that given by the glandered animal in its rapid disappearance. Similarly, when a rise of temperature is produced by mallein in a healthy horse immunised against other bacterial products, this is smaller, attains its maximum more rapidly, and is far less persistent than the febrile reaction to mallein of a horse suffering from glanders. These differences are illustrated in the charts on *page 234*.

Similar results were obtained upon immune horses with tuberculin and several other bacterial products, such as those obtained from *Streptococcus*, *Bacillus coli communis*, *Bacillus typhosus*.

**Tuberculin** ("Old" Tuberculin).—Tuberculin for veterinary diagnostic use is prepared from bacillus tuberculosis by a method similar to that used in the production of mallein from bacillus mallei. For the diagnosis of tuberculosis in cattle the temperature reaction is of much greater importance than the local effect of the injection. A rise in temperature of 2.5° F. within 12 to 15 hours of injection is usually considered sufficient to warrant the condemnation of an animal.

**Ophthalmo-Tuberculin Reaction.**—The reaction is produced by purified tuberculin obtained by the alcoholic precipitation of ordinary tuberculin. If a small quantity of the precipitate, dissolved in water, be applied to the surface of the conjunctiva, a marked reaction results in the case of tuberculous

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individuals. It is too early to decide definitely in favour of this method of diagnosis over the old one of injection, since cases have been reported where some inconvenience due to persistence of inflammation has arisen as a consequence of the application to the eye. Cases have also been reported in which reactions have been obtained in non-tuberculous subjects.

Purified  
tuberculin

Several methods of diagnosis have been recommended, in which the tuberculin is applied to the scarified or otherwise prepared skin, and which depend likewise on the increased susceptibility to tuberculin of the tuberculous subject.

The serum diagnosis of typhoid fever

A series of investigations, made in different countries, has brought to light the fact that the serum of an animal rendered highly immune to the typhoid bacillus has a marked action upon the organisms, causing them to lose their motility, and to become collected together into little masses, which rapidly sink to the bottom of the tube containing the mixture of serum and culture.

Following this, the fact that the serum of patients suffering from typhoid fever usually gives a reaction with cultures of the typhoid bacillus, similar to, though less marked than, that given by the serum of animals immunised by the bacillus, has been confirmed by a host of observers. This affords evidence of great weight that the bacillus is really the cause of typhoid fever, and it also affords a valuable method of diagnosis.

Typhoid

In the serum of those suffering from typhoid fever, the reaction is said to have been observed as early as the fourth day. Usually it appears about the beginning of the second week, but it is undoubtedly often absent at this period. According to Courmont (*Revue de Médecine*, October, 1897), it is in cases which are exceptional, either on account of

complications or severity, or because they are extremely mild, that the agglutinative power is feeble or delayed; in simple cases of moderate

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[Drawing]

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severity it appears constantly about the sixth or seventh day, is active, in dilution of 1 in 100, about the tenth day, undergoes a more or less rapid rise towards the end of the febrile period (critical rise), and then disappears more or less rapidly. The persistence of the agglutinative power after recovery appears to be very variable, in some cases rapidly disappearing, in others remaining for years. The blood of those who are not suffering from typhoid fever, and from whom no history of this disease can be obtained, occasionally gives a reaction in dilution of 1 in 10, or even 1 in 30 (the dilutions recommended by Widal). But these instances do not appear to be sufficiently numerous to impair seriously the value of the test. It is thought desirable, however, to use higher dilutions, viz., 1 in 50.

From the considerations briefly set out above, it seems permissible to conclude that—

(1) A negative reaction is of little value in the early days of the fever. It is of greater importance in proportion to the lateness of the period at which it is observed. It can, however, never absolutely exclude typhoid fever. (2) A positive reaction, on the other hand, except with dilutions of less than 1 in 40, is sound evidence of typhoid fever, present or past. The latter can be excluded if several quantitative tests have been made at different periods, and decided changes in the agglutinative power observed.

Conclusions

Recently an ophthalmo-reaction in typhoid fever, produced by a special culture filtrate and resembling the tuberculo-ophthalmic reaction, has been described by Chautemesse, and some promising results of a similar nature have been obtained by the use of a typhoid endotoxin prepared at the Wellcome Physiological Research Laboratories.

Organo-therapy

The brilliant success which attended the introduction of the treatment of myxœdema by administration of thyroid substance, led to the investigation of the effects of other ductless glands. In no other case has a similar success attended similar methods; but the attention directed to these organs has resulted in the

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[Drawing]

One of the Laboratories for Physio-Chemical Research


discovery of marked physiological actions, of great therapeutic importance, possessed by some of them. It has been shown, by Schäfer and others, that the posterior or infundibular lobe of the pituitary gland contains an active principle—as yet of unknown nature—the effects of which are not less striking than those of the more familiar active principle of the supra-renal medulla. The effects of the pituitary extract include arterial constriction, intense and prolonged contraction of the uterus, and profuse secretion of urine. The action on the uterus is already attaining therapeutic importance, while the use of the tonic effect on the arteries to combat surgical shock has been recommended by several observers, notably by Mummery and Symes. The diuretic effect should also render the extract of great value in certain conditions.

#### ‘Hemisine’

‘Hemisine’ is a name given to the active principle occurring in the medulla of the supra-renal gland and other smaller masses of paraganglionic tissue related to sympathetic ganglia. Its action likewise is closely connected with the sympathetic nervous system, intravenous injection producing all the effects which are elicited by stimulation of the nerve fibres of the true sympathetic system. Prominent among these is a great rise of blood-pressure, produced by constriction of peripheral arteries and augmentation of the heart’s activity. So active is ‘Hemisine’ in this direction, that a dose of as little as 0.000001 gramme will produce a perceptible rise of blood-pressure. Contraction of the uterus is also caused in those animals in which the sympathetic nerve-supply to that organ is motor in function. These effects are illustrated by tracings.

Physiological  
properties of  
‘Hemisine’

#### ‘Tyramine’

‘Tyramine’ is a name which has been given to the organic base *p*-hydroxyphenylethylamine (HO-  CH<sub>2</sub> - CH<sub>2</sub> - NH<sub>2</sub>). It has been recognised now for some years, having been first pointed out by Abelous and his associates, that extracts

of putrefied meat contain substances which, when injected into the circulation, produce an effect on the blood-pressure reminiscent of that produced by supra-renal extracts. The same phenomenon was encountered by Dixon and Taylor, who found that certain extracts of human placenta caused a rise of blood-pressure and contraction of the uterus, it being subsequently demonstrated by Rosenheim that a certain amount of putrefaction of the placenta was necessary for the development of this activity. The substances concerned in this action have recently been isolated at the Wellcome Physiological

Isolated  
at W.P.R.L  
.

Research Laboratories, and identified as *iso*-amylamine, phenylethylamine, and *p*-hydroxyphenylethylamine (Barger and Walpole, *Journal of Physiology*, xxxviii, p. 344, 1909). The action of these substances has been found to be similar in most respects to that of the supra-renal active principle, but weaker and more prolonged (Dale and Dixon, *Journal of Physiology*, xxxix, p. 25, 1909).

Of the three, *p*-hydroxyphenylethylamine is much the most active, being also the most nearly related in chemical structure to the supra-renal principle. Its relatively weak and prolonged action, as compared with the latter, enables it to be absorbed from the alimentary canal or the subcutaneous tissues, so that its general constitutional effects,

Tyramine  
the most  
active

rise of blood-pressure, increased vigour of the heart's action  
its general constitutional effects, rise of blood-pressure, increased  
vigour of the heart's action, and contraction of the uterus, can be  
produced by administering it by the mouth or hypodermically.

The study of this substance has recently gained greatly in interest by the discovery (Barger and Dale, *Journal of Physiology*, 1909, xxxviii, p. 77, [Proc. Phys. Soc.]) that it is present in watery extracts of ergot, and is chiefly responsible for the well-known effects of such extracts on the blood-pressure and the uterus.

Several methods of preparing this base synthetically have been worked out at the Wellcome Physiological Research Laboratories (Barger, *Journal of the Chemical Society*, xcv, p. 1123, 1909), and it will probably find wide therapeutic use.

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Wellcome Physiological Research Laboratories

Ergotoxine and 'ernutin'

Many substances which have in the past been described as active principles of ergot and which undoubtedly showed physiological activity, have not possessed the characteristics of pure chemical substances. Such were the sphacelinic acid and cornutin of Kobert, and the chrysotoxin, secalintoxin, and sphacelotoxin of Jacobj. On the other hand, the alkaloid which Tanret isolated in an undoubtedly pure and crystalline form, and named ergotinine, was found by several observers to possess practically

no pharmacological action, although there was some clinical  
evidence of its activity. Recent work in the Wellcome  
Physiological Research Laboratories (*see* Dale, *Journ. of*  
*Physiol.* xxxiv, p. 163, 1906; Barger and Carr, *Journ. Chem.*

Active  
principles  
of ergot

*Soc.*, xci, p. 337, 1907; Barger and Dale, *Bio-Chem. Journ.* ii, p. 240, 1907) has cleared up this anomaly by demonstrating the presence in ergot of the alkaloid ergotoxine, which is closely related chemically to ergotinine, being a hydrate of the latter and easily produced from it, but differing from it in being intensely active physiologically.

Ergotoxine, though itself amorphous, forms crystalline salts,  
and has accordingly been prepared in a chemically pure  
condition. Its physiological action is characteristic, consisting  
of a stimulant action on plain muscular organs, and in particular

The  
alkaloid  
ergotoxine

on the arteries and the uterus. When a large dose is given, a secondary paralytic effect on the motor functions of the true sympathetic nervous system is produced. As a result, the injection of 'Hemisine,' or stimuli applied to the sympathetic nerves concerned, now cause a fall of blood-pressure and relaxation of the uterus in place of the previous rise of pressure and contraction. This secondary action affords a convenient means of recognising the presence of the active alkaloid, and estimating the quantity present in any specimen or preparation of ergot. This physiological method of assay is the more valuable in that no satisfactory chemical method is yet available for estimating ergotoxine.

Page 244  
[Tracings.]

No. 1. Tracing showing the effect of 'Hemisine' on the Blood-Pressure  
*See page 246*

No. 2. Tracings illustrating action of 'Hemisine' and Method of Standardisation  
*See page 247*

Page 245  
Wellcome Physiological Research Laboratories

As indicated in the description of 'Tyramine,' it has now been shown that the activity of watery ergot extracts is chiefly due to the presence of *p*-hydroxyphenylethylamine. It is quite in accord with what might be expected on theoretical grounds, that the ferments of a fungus like ergot should, equally with putrefactive bacteria, have the power of producing the base from the amino-acid tyrosine, derived, in this instance, from the proteins of the rye-grain. The presence of varying amounts of *p*-hydroxyphenylethylamine, together with small amounts of ergotoxine, accounts for the whole of that action of ergot extracts on the blood-pressure, which has been widely recommended as a basis of standardisation.

'Ernutin' is a fluid preparation which contains these active principles of ergot in a definite and uniform proportion, unmixed with depressant and harmful impurities.

#### Physiological standardisation

No insistence is needed on the desirability of a uniform standard of activity in all drugs, and especially in such as contain principles of a highly active and toxic nature. In the case of some, such as cinchona or belladonna, such a standardisation is easily carried out by chemical means. There are, however, other drugs in which the active principles are of such a nature that attempts at chemical estimation are only misleading, even though the active principles are recognised and something known of their chemical nature. Typical instances of such drugs are those of the group including digitalis, strophanthus and squill. In the case of digitalis, research in these Laboratories (Barger and Shaw, *Year-Book of Pharmacy*, 1904) has shown the futility of the chemical methods suggested and the adequacy of an estimation based on the effect of the drug on

Necessity for  
physiological  
methods

the frog's heart. The conclusions reached apply, with little modification, to strophanthus and squill, and preparations of all these drugs are now standardised by this method in these Laboratories.

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Wellcome Physiological Research Laboratories

Cannabis indica is a notoriously variable drug, but, by observing the nervous symptoms produced by a given dose in a dog or cat, a fair estimate of the activity of any specimen can be made.

Ergot is another drug in which the amount of the active principles varies to a very marked degree. The isolation of ergotoxine, and the demonstration of the presence of

Ergot *p*-hydroxyphenylethylamine in ergot extracts, may eventually lead to the development of a satisfactory chemical method of determining its activity. Hitherto, however, a physiological method based on the action of ergotoxine and *p*-hydroxyphenylethylamine described above has proved a far surer guide than any chemical assay.

The purity of a specimen of 'Hemisine' can be much more satisfactorily determined by comparison of its activity to that of a standard specimen than by chemical tests. The

'Hemisine' method illustrated, in which the amount of a given specimen is determined, which produces a rise of blood-pressure equal to that given by a given dose of a specially-prepared pure standard sample, is found in these Laboratories to be workable to an accuracy of about 5 per cent., and is used in standardising all supra-renal preparations.

Kymographic tracings are exhibited illustrating the action of drugs mentioned above, and methods of physiological standardisation.

Description of tracings

(1) 'Hemisine.' The lines of tracing, from above downwards, are:—

- I. Plethysmographic tracing of heart volume.
- II. Manometer-record of blood-pressure from the carotid artery.
- III. Signal line, showing time of injection.

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Wellcome Physiological Research Laboratories

At *H* 0.0001 gm. of 'Hemisine' was injected into the jugular vein, causing a large rise of blood-pressure, and quickening and strengthening the heart-beat.

(2) '**Hemisine**'—

(a) Effect of 'Hemisine' on the blood-pressure of a decerebrate cat:—

Lines of tracing—

- (1) Blood-pressure.
- (2) Signal line marking the point of injection.
- (3) Time-clock marking every 10 seconds.

(b) Method of standardising 'Hemisine' and other supra-renal gland preparations.  
Varying doses of the solution to be tested are interposed between injections of 0.00002 gm. of the standard specimen of 'Hemisine.' Effects of standard doses are indicated by a **X**. Between the injections the recording drum is moved back so as to produce partial superposition and facilitate comparison.

(c) Effect of 'Hemisine' on the isolated heart of a rabbit, perfused through the coronary circulation with oxygenated Ringer's solution (Locke's method). At **X** 0.00005 gm. of 'Hemisine' was added to the perfusion fluid.

(3) Effect of '**Hemisine**' and **Ergotoxine** on the blood-pressure and the uterus—

(a) Effect on the blood-pressure of intravenous injection of

- (A) 0.00005 gm. of 'Hemisine.'
- (B) Alcoholic extract from 1 gm. of ergot.
- (C)       "       "       "       "
- (D) 0.00005 gm. of 'Hemisine.'
- (E)       "       "       "

Showing the rise of blood-pressure and subsequent reversal of the effect of 'Hemisine' due to ergotoxine in the ergot.

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[Tracings.]

No. 3. Tracings showing the effect of 'Hemisine' and Ergotoxine on the Blood-Pressure and the Uterus *See page 247*

No. 4. Tracings showing the effect of Strophanthus on the Heart and Blood-Pressure  
*See page 249*

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Wellcome Physiological Research Laboratories

(b) Effect of 'Hemisine' on the blood-pressure and uterine contraction. At **X** 0.0001 gm. of 'Hemisine' was injected, intravenously, producing a temporary rise of blood-pressure and a similarly evanescent contraction of the uterus.



- (c) Effect of ergotoxine on the blood-pressure and uterine contraction. At A 0.002 gm. ergotoxine was injected, producing a large rise of blood-pressure and very powerful and persistent uterine contraction.
  - (d) Effect of intravenous injection of 0.5 gm. of chrysotoxin (ethereal ergot extract) on the blood-pressure and uterus of a monkey. The effect on the uterus is the only one of importance.
- (4) Effect of Strophanthus on the heart and blood-pressure of a pithed cat. Lines of tracing are:—
- 1. Cardiographic tracing, showing pull exerted by the heart on a lever held by a light spring.
  - 2. Manometer-record of blood-pressure.
  - 3. Zero line of manometer.
  - 4. Time-clock marking seconds.
- (a) Before injection of strophanthus.
  - (b) After injection of a small therapeutic dose, rise of blood-pressure and augmentation of the heart-beat. The vagus centre being destroyed, the rate of the heart-beat is only slightly reduced.
  - (c) After further injection of strophanthus, the heart-beat, still powerful, becoming quicker and irregular.
  - (d) After a toxic dose of strophanthus. Heart-beat rapid, feeble and irregular. Blood-pressure falling rapidly.

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 [Drawing]  
 Laboratory for Special Bacteriological Research

Page 251  
 Wellcome Physiological Research Laboratories

#### Description of the Wellcome Physiological Research Laboratories

The original laboratories, established in 1894, were enlarged from time to time to meet the requirements of constantly increasing work, until it was found necessary to acquire more commodious premises. The new laboratories were established at Brockwell Hall,

The new  
 laboratories

Herne Hill, London (Eng.) in the early part of 1899.

Brockwell Hall is an old-fashioned country mansion, standing in its own grounds. The adaptation of these premises to the requirements of research work has been carried out with the greatest care, and no pains or expense have been spared in rendering their appointments as complete as possible; so that the Institution's highly-qualified staff of research workers have full scope for their energy.

The room shown in the illustration on *page 238*, is the principal Bacteriological Laboratory. In this laboratory research is carried on in bacteriology and serum-therapeutics, injections are made for the standardisation of sera prepared in the establishment, and the elaborate series of sterility tests is made to which all sera are submitted before issue. On the other side of the entrance-hall is the principal Chemical Laboratory (*see page 240*), devoted to research on the nature of naturally occurring substances of biological importance, and the synthesis of new compounds likely to be pharmacologically and therapeutically interesting.

Bacterio-  
logical and  
Chemical  
Laboratories

A small Chemical Laboratory; the Secretary's office; a dark room for photographic work; and the Library, are also on the ground floor. The Library is well supplied with standard works of reference, both chemical and physiological, and the current scientific literature of both these subjects, as well as that of bacteriology, is well represented.

The spacious cellarage contains, in addition to compartments for storage of various materials, a recently-erected cold chamber,

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[Two Drawings of Chambers]

One of the Incubating Chambers

Cold Storage Chamber

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Wellcome Physiological Research Laboratories

9 ft. x 7 ft. in floor area, kept constantly below freezing-point by means of an ammonia freezing installation, and also an incubating room.

The Physiological Laboratories are situated on the first floor of the building. In these rooms physiological and pharmacological research, and the physiological testing and standardising of various drugs and chemicals are carried on.

Physiological  
Laboratories

On the same floor are:—

(1) **Serum office.** A small room at the head of the staircase where all the records of procedures connected with serum production are preserved in perfect order for daily work and reference.

(2) **Sterile serum room.** A room paved with cement and fitted with special glass benches for the manipulation of serum. It can be flushed all over with water to free the air from dust, and, with the door closed, can be sterilised with formalin. It is provided with a large porcelain dialysing-tank, and is used for the processes involved in the artificial concentration of antitoxin.

(3) A room devoted to the preparation and standardisation of bacterial vaccines.

(4) **Serum testing room.** A room set apart for making dilutions of diphtheria antitoxic serum and preparation of injections of mixed diphtheria toxin and serum used in standardising the latter for issue from the laboratories (to Messrs. Burroughs Wellcome & Co.). The standard apparatus employed is never moved from this room nor used for any other purpose.

(5) A third chemical laboratory, provided with special mechanical appliances for working at low pressures.

Two special laboratories are devoted to the preparation of media; one, a small pent-house, occupied entirely in the production of test-tube media for use in the bacteriological laboratory; the other, a commodious well-lit outbuilding communicating with the boiler-house, having a floor paved with cement, and the

Nutrient  
media

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[Two Drawings]

One of the Rooms in which Phials are Filled

Special Laboratory for the Collection of Blood and Separation of Sera

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Wellcome Physiological Research Laboratories

walls enamelled in order to facilitate cleaning. Here is made nutrient broth of various kinds on a large scale, to be used in the preparation of the various cultures and toxins for use in the stables. This laboratory is also used for the initial work upon crude animal material before it is sent to the chemical laboratory for further elaboration. Between this room and the boiler-house are two compartments, one for stores, the other to accommodate the large high-pressure steriliser which can deal with bottles, containers, etc., of large size.

The serum, after being obtained in the collection-laboratory adjacent to the stables, is taken to a special building recently erected, where all further processes involved in separating it and measuring it into phials are now carried out. The building contains a cleaning-room for all apparatus used in the manipulations; a sterilising-room, for the heat-sterilisation of the same; and a phial-room, where the phials, in which the sera and vaccines are issued, are cleaned and prepared for sterilisation, and subjected to scrutiny after filling. The rest of this building is completely closed from the outside air, and ventilated by an ample current supplied by a large motor-fan, placed outside in a special building. The air is passed through a germ-proof filter before it enters the main building; the rooms are constructed without angles or corners, and can be sterilised nightly with formaldehyde vapour, which the sterile, fan-driven air removes again in a few minutes. This sterile section includes:—

Germ-proof  
filters

(1) A store-room in which the sera and vaccines are kept, ready to be run into the issuing-phials.

(2) Duplicate rooms in which the process of separating the serum from the clot is carried out. One of these rooms is always being sterilised while the other is in use. These rooms open out of the serum store, and can only be approached through it. A small chamber, in which the serum is mechanically driven through germ-proof filters into the storage bottles, also opens out of the store-room.

(3) A room in which the serum is filled into phials. This is approached from the phial-preparing room by means of a

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[Drawing]

Interior of one of the Stables

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Wellcome Physiological Research Laboratories

double air-lock. Before entering the room the assistants must assume sterilised overalls, caps and goloshes, and sterilise the hands. Into this room the serum passes by tubes from the store room, and each phial, as soon as filled, is passed under a glass screen to another assistant, who immediately seals the neck at the blow-pipe.

Between the main building and the animal houses a brick building of one storey has been erected. The one room on the ground level is specially fitted for bacteriological work.

The floor is cemented, the walls tiled to a height of four feet,

and all corners avoided by a rounding of angles. In this room

Other  
Laboratories

manipulations are carried out connected with stock cultures, special research work, and the preparation of various vaccines.

The cellarage, surrounded by a drained area, is divided into two rooms. The larger, 12 ft. square, is kept at a constant temperature, ranging from 35°-40° at different levels in the

room. This is used for incubation on a large scale. Alongside it is a smaller room, in which a still atmosphere affords especially suitable conditions for bacteriological operations. Recently another building, containing three laboratories, and two rooms for keeping rodents, has been erected at distance from the other buildings, for the purpose of special bacteriological research.

#### The Stables and other Adjuncts

The stables are situated about one hundred yards from the laboratories. They are lofty, well-lighted and well ventilated, and are fitted with every convenience and contrivance conducive to the well-being of the horses. The walls are of white glazed brick and cement, the floor being paved throughout with the best stable bricks.

The old stables and coach-houses of the Hall have been remodelled in accord with modern views, and are now used for the testing of new horses with mallein and tuberculin before they are admitted to one of the large stables. Near by is a special laboratory for

Collection of  
sera

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#### Wellcome Physiological Research Laboratories

the collection of blood and separation of sera. This laboratory, like the stables, has been so built as to permit of the whole room being flushed with water, so that sera can be manipulated under the conditions necessary for ensuring sterility.

An entirely new system of drainage for the laboratories, stables and other premises has been carefully carried out.

The laboratories, stables, outbuildings and grounds are electrically-lit, and all in telephonic communication. The boiler, engine and dynamo necessary for the generation

of the current used in the various motors on the premises are placed in brick and cement buildings adjoining the south-west side of the Hall. Electric Installation Near the boiler is a large cylindrical steriliser, constructed for a working pressure of 30 lb. The sterilisation of all large vessels containing nutritive media, etc., is effected here, as also of all vessels which have been used in the laboratories.

The grounds contain a large paddock, and also gardens for growing vegetables for the animals. A large store for fodder, with electrically-driven chaff-cutter, has recently been erected. Paddock gardens

#### The Animal Houses

A large animal house has been erected, which accommodates all the rodents required for the work of the laboratories. It contains full provision for the efficient isolation of animals inoculated with living cultures. The heating and

isolation                      ventilation of this building have been very carefully carried out, with a view to the health and comfort of the animals.

Another range of sheds contains well-drained, comfortable kennels for dogs, a stable for goats, and a steam-heated apartment for cats, communicating with a large open-air cage.

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Weapons of Precision Produced by Science and Industry

Weapons of Precision  
produced by  
Science and Industry

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[Drawing]

‘Wellcome’ Chemical Works, Dartford, Kent

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The Work of  
Burroughs Wellcome & Co.

From the time of the founding of the firm, progress has been steady and continuous. The keynote of this success lies in the firm’s own original scientific work, conducted under the most favourable conditions, as well as its ready recognition of all scientific advances and research, and adaptation of the results to the methods of modern production.

Keynote of  
success

“The rule of thumb is dead and the rule of science has taken its place”

“Science and Industry” has been the guiding motto of B. W. & Co. from the first. They have aimed at attaining and maintaining the highest possible degree of excellence in the products they issue. By keeping abreast of research work, and by promptly adopting the most scientific modern methods, they have not only kept pace with the latest developments in medicine and pharmacy, but have been pioneers in the introduction of some of the most notable agents employed in modern medicine, and have contributed largely to the great advances of the times.

“Science and  
Industry”

Patient and persistent research\* by a staff of chemical, pharmaceutical and physiological experts has yielded fruitful results. Not only has the firm satisfied the highest requirements of physicians by the purity, reliability and scientific precision of the products, but it has met the needs of conscientious pharmacists who pride themselves on the *supreme* quality of everything they dispense.

Results of  
scientific  
research

\* Research pioneered by Burroughs Wellcome & Co. many years ago is still continued in their works by a highly-qualified staff. The Wellcome Chemical Research Laboratories, King Street, London (Eng.), and the Wellcome Physiological Research Laboratories, Brockwell Hall, Herne Hill, London (Eng.), are Institutions conducted separately and distinctly from the business of Burroughs Wellcome & Co., and are under separate and distinct direction, although in these two Institutions a large amount of important scientific work is carried out for the firm.

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[Photo of Building]

Portion of Frontage Burroughs Wellcome & Co.'s Chief Offices, London  
Corner of Holborn Viaduct and Snow Hill facing Holborn Viaduct Station

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The Work of Burroughs Wellcome & Co.

To supply medicaments characterised by purity, accuracy, uniformity and reliability has been the firm's policy from its earliest days. This has been achieved by devising new appliances, by employing only the most scientific methods, and by conducting the various stages of manufacture under the direct supervision and control of specially-trained and qualified pharmacists and other experts. That success has been achieved is amply evidenced by the high appreciation accorded by physicians and pharmacists throughout the world to the "Weapons of Precision" created by the firm. Untiring, strenuous endeavour and vast expenditure have been required to attain these results.

"Weapons of  
Precision"

Working Imperially

Mr. Joseph Chamberlain has taught the nation to think Imperially,—Burroughs Wellcome & Co. work Imperially.

It has been the special ambition of this firm to win back to England by actual merit some of the lost industries snatched away from the country in recent years by alert, enterprising rivals of other lands, who wisely and well apply science to their industries, and slumber not. B. W. & Co., never content with the time-honoured "rule of thumb" methods, have in a considerable measure gratified their ambition. Particularly in the production of Fine Medicinal Chemicals including the powerful alkaloids, glucocides and other active principles now so largely replacing the use of bulky and nauseous crude natural drugs, thus securing greater certainty and uniformity of potency.

Bringing back  
to England  
lost industries

In this work it has been the aim not only to equal but to surpass foreign production, and the results speak for themselves.

## Pioneers in New Drugs

The firm has pioneered the introduction of many new and valuable natural drugs, notable amongst which may be mentioned *Strophanthus*, or *Kombé*, the powerful African arrow poison which has proved so efficacious in certain heart disorders.

“Turned a deadly enemy into a valued friend”

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[Photo of Building]

*Italian Depot:*

Burroughs Wellcome & Co.

26, Via Legnano, Milan

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The Work of Burroughs Wellcome & Co.

Sir Thomas Fraser of the Edinburgh University first investigated and demonstrated the properties of *Kombé* from a comparatively small specimen, and B. W. & Co. immediately took vigorous steps to procure supplies of the drug regardless of expense and immense difficulties.

Pioneers in the  
introduction of  
*Strophanthus*

Emissaries were sent to collect the small reserves of arrow poison from the rude huts of many Central African warriors. In this way a fair quantity was accumulated, but at a cost of more than £20 per pound.

£20 per pound

Thus the true *Strophanthus Kombé* was first introduced to England and to the world—B. W. & Co. were first in the field.

[Drawing]

A bundle of the first consignment of *strophanthus* which reached Europe for Burroughs Wellcome & Co.

These earliest supplies were obtained quite regardless of monetary considerations, and notwithstanding the great cost, parcels of the drug and its preparations were at once distributed, without charge, to leading physicians throughout the world. By this means the therapeutic properties of *strophanthus* were confirmed by investigators in various lands.

For more than a year this was the only supply of *Strophanthus* outside the “Dark Continent,” and then B. W. & Co. again secured all that was obtainable, and were the only suppliers for many months. *Strophanthus* is now one of the approved remedies of the *Pharmacopœias*. In less than two years the firm was treating several hundred-weights of *strophanthus* seeds at a time, thus

Products of  
B. W. & Co.  
secure pre-  
cision of dose



securing perfect uniformity in the activity

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[Photo of Building]

*Australasian Offices and Warehouses:*

Burroughs Wellcome & Co.

481, Kent Street, Sydney, N.S.W.

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The Work of Burroughs Wellcome & Co.

of the products, and enabling the dosage and action to be controlled with precision.

[Drawing]

Arrow-head poisoned with strophanthus

Amongst those who were interested in the introduction of strophanthus were Sir John Kirk (then of Zanzibar), and Dr. David Livingstone, who referred to its employment by natives as an arrow poison, in his narrative of his expedition to the Zambesi. It was the intimate association which Burroughs Wellcome & Co. have always had with the pioneers of African exploration which enabled them to be first in placing supplies of the drug at the disposal of the medical profession.

[Drawing]

Plumed seed of Strophanthus Kombé

Strophanthus Kombé, the source of the drug, is a woody climber growing freely in many parts of Eastern Africa. From the seeds the natives prepare a paste with which they poison their arrows.

The source

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[Photo of Building]

*South African Offices and Warehouses:*

Burroughs Wellcome & Co.

5, Loop Street, Cape Town

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The Work of Burroughs Wellcome & Co.

The seeds are contained in follicles, and each bears a beautiful plume-like appendage springing from a delicate stalk. Each seed weighs about half a grain.

Pioneers in Pharmacological Work on Animal Substances

When renewed attention was drawn to the therapeutic action of certain animal substances, this firm pioneered the pharmacological work on the various glands, having already been long engaged upon researches on brain matter and other substances of animal origin, they were first to produce a stable and reliable product of the thyroid gland, and this remains the standard and accepted preparation amongst the medical profession throughout the world.

Although the principle suggesting and guiding this modern departure in therapeutics is the outcome of recent physiological research, the belief in the use of organs or tissues for the relief of human suffering, or for the production of certain physical conditions, is known to have existed from the earliest times.

Antient belief

The belief in the utility and value of animal glands and tissues in the cure of disease is not altogether the outcome of modern research, for we learn from Herodotus, fifth century B.C., that in his day, the people called Budini or Geloni “used the testicles of otters, beavers and other square-faced animals for diseases of the womb.” From prehistoric times savage tribes have been accustomed to eat the hearts of lions, tigers and other courageous animals, and even of human enemies, with the object of acquiring added valour in battle. And so, after the lapse of centuries, the fruits of man’s early instinct have been reaped for his benefit by modern scientific men.

Among old-world medicines, compounds of the organs and tissues and excreta of mammals, birds, fishes and insects occupied permanent positions of prominence. They were included in the London Pharmacopeia issued by the Royal College of Physicians in 1676, and in Salomon’s New London Dispensatory of 1684. The present increasing use of animal

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The Work of Burroughs Wellcome & Co.

substances may be largely traced to the researches and enthusiastic advocacy of Brown-Séquard, though it must be admitted that such advocacy was exaggerated, and perhaps lacked dignity and reserve. In spite of his attitude, which experience has not justified, he in some considerable measure succeeded in establishing his contention that all glands, with or without excretory ducts, give to the blood, by internal secretion, principles always important and in most cases essential, to the general well-being of the body.

Organo-therapy, animal medication, and glandular therapeutics are among the terms now applied to the administration of organs or tissues or of the internal secretions of glands, in certain diseases, induced, or believed to be induced, by the degeneration, disease, defective development, or removal of the corresponding organs, tissues, or glands. Many diseases, arising from defective functions of particular organs, are now treated by these animal substances, and the principle has been established that the lessened or lost power of an organ may in some

Modern  
knowledge

cases be restored by the administration of corresponding organs taken from healthy lower animals.

The work of Burroughs Wellcome & Co. on these animal substances has been directed not to the therapeutics but to the chemical and pharmacological side, and the production of active and staple products for the use of the medical profession, and in this they have attained marked success.

Amongst other animal products dealt with was the suprarenal gland, which yielded first to Abel and Crawford a powerful and highly valuable active principle under the title Epinephrine, other workers produced modified products, but the active principle was first produced in a dry, soluble, active form in the Wellcome Physiological Research Laboratories, and is now issued by the firm under the title 'Hemisine.'

Good or Evil

Ergot, the blessed and cursed blight of rye, which has wrought much good and much evil, a substance greatly valued

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The Work of Burroughs Wellcome & Co.

as a remedy, and yet it destroyed countless lives during the grain plagues called St. Anthony's fire of the middle ages.

Ergot of rye has been one of the problems that has long baffled scientific workers. It was investigated in these same laboratories, and the true representative active principle was discovered, and is now issued as a standardised product of great power and uniform activity of immense importance to the medical profession.

Ergot blessed  
and cursed

Therapeutic Sera

The Wellcome Physiological Research Laboratories were pioneers in the production of Anti-Diphtheritic Serum in the British Empire, and also supplied the first used in America. During the early days, and until the real value was conclusively demonstrated, all offers to purchase supplies of the serum were refused, but all that could be produced was freely placed without charge at the disposal of the principal clinics, hospitals and private medical men who had diphtheritic cases under treatment. These trials proved successful, and the 'Wellcome' brand of serum supplied by B. W. & Co. has continued to hold first place throughout the Empire. These laboratories have done a vast amount of original work in the whole range of therapeutic sera—and in vaccines, etc., and in many other organic bodies of importance in medicine.

At first for  
clinical tests

Though these Physiological Research Laboratories are conducted under separate and distinct direction, and many of the researches are solely of scientific interest as

contributions to human knowledge, yet much work of practical value is carried out for the firm, the Principal of which founded the laboratories.

#### Fine Chemicals

The Wellcome Chemical Research Laboratories have worked in the same manner with benefit to science and to the firm, devising new chemical processes and producing new chemical

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The Work of Burroughs Wellcome & Co.

agents, both organic and inorganic. The investigations of vegetable drugs and their representative principles have yielded highly important results, both in the discovery of new principles and in raising the standard of purity and potency of valuable well known substances, notably Pilocarpine, Aconitine, etc., etc. Raising the standard The co-operation of these two research laboratories, with their efficient scientific staffs working under the guidance of the two highly-qualified Directors, distinguished for thoroughness and accuracy, is of immense importance to the firm.

But the research work does not rest here. There is also in the experimental and analytical laboratories at the firm's works, a highly-skilled staff constantly engaged in research for the discovery of new active chemical and pharmaceutical substances, and for the improvement of those already known.

Amongst the recent discoveries are 'Soamin,' the new substance which has proved so successful in the treatment of Syphilis, and of the dread Sleeping Sickness now rapidly decimating the population of the Congo, Uganda and other parts of Central Africa; 'Orsudan,' now under trial for Malaria; and 'Nizin,' the new antiseptic, powerful, but free from many of the dangers of other antiseptics.

A large number of other important developments in chemistry and pharmacy have been made in these laboratories, including the production of Chloroform of a standard that secures greatly increased safety and uniformity, and the confidence of the medical profession.

In the manufacturing departments every operation is studied with the view to new discoveries and improvements, and aiming to make daily progress.

#### Equipments

Completely fitted cases have been devised to meet the requirements of up-to-date medical men and others engaged in medical and sanitary science; for example, hypodermic, ophthalmic cases, urine testing, water analysis, bacteriological testing cases, etc.

## The Work of Burroughs Wellcome & Co.

Medicine and first-aid chests, cases, belts, etc., for military and naval purposes, for explorers, missionaries, travelling journalists, war correspondents, aeronauts, motorists, yachtsmen, planters; in fact, equipments for the air, for the earth, for the depths, and for every clime under every condition.

### History of Compressed Drugs

Burroughs Wellcome & Co. are successors to, and the sole proprietors of, the business of Brockedon, who, in 1842, originated compressed medicines in the shape of bi-convex discs—issued under the designation of “compressed pills.”

The production of compressed substances has been developed and carried to a high state of perfection by B. W. & Co. This has been accomplished by research and the use of chemicals of exceptional quality, and by the employment of specially-devised machinery of rare accuracy. This exclusive machinery, invented by the firm, and produced at great cost, operates with the precision of the finest watch-work. By its aid the firm’s specially-trained expert chemists are enabled to prepare compressed products for issue under the ‘Tabloid,’ ‘Soloid’ and other brands, of unique accuracy of dosage and of a perfection of finish never before attained. These products present medicines, etc., of so varied a character as to represent a range of dosage of 1/1000 of a grain to 60 grains or more.

Origin of  
compressed  
products

B. W. & Co’s  
work in  
perfecting

The qualities of purity, accuracy, activity and stability which characterise ‘Tabloid’ and ‘Soloid’ products have secured unusual appreciation and approval from medical and pharmaceutical experts, and these preparations are prescribed in private practice and in military and civil hospitals in all parts of the world.

World-wide  
appreciation

### Medical and First-Aid Equipments

From the time of the founding of the business, Burroughs Wellcome & Co. have made a special feature of studying medical and surgical requirements for expeditions to tropic and

## THE

### Trade Marks

**‘Tabloid’**

AND }

Invented  
by  
B. W. & Co.

## **‘Soloid’**

Are

B. W. & Co    Hall Marks

They *mark* the work of  
Burroughs Wellcome & Co.

They *mean* “Issued by  
Burroughs Wellcome & Co.

They *stand* for

24 CARAT products

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The Work of Burroughs Wellcome & Co.

arctic and other trying climates, especially for the use of explorers, journalists and other travellers; for armies in camp, on the march, and in the battlefield.

Careful and prolonged enquiry and practical experimentation have enabled them to so perfect their equipments for these purposes that almost every military expedition and journalistic pioneering tour of recent years has been fitted out by the firm.

B. W. & Co.’s General Offices

The firm’s chief offices and administrative premises are centrally situated in the City of London, facing Holborn Viaduct Station, and at the junction of Holborn Viaduct and Snow Hill. They are thus within a stone’s throw of such historic sights as St. Paul’s Cathedral, the Old Bailey (Central Criminal    Chief Offices  
Courts), the Charterhouse, St. Bartholomew’s, and Smithfield.

Originally occupying only the corner building, these offices have been extended, at the demand of increased business, both along Holborn and down Snow Hill until the street frontage has become nearly 300 feet, and the floor space 43,000 square feet (*see page 262*).

‘Wellcome’ Chemical Works

The ‘Wellcome’ Chemical Works (*illustrated on page 260*), which form the principal manufacturing premises of the firm, are situated at Dartford,    Works  
Kent, near London. On one side the Works have direct water communication with London and the Docks of the Waterway of the Thames; on the other side they front on to the railway and so are in touch with the metropolis and the Continent.

## Six B. W. & Co.'s Establishments Abroad

In addition to the Chief Offices and Works in England, Burroughs Wellcome & Co. have fully-equipped establishments at New York, Montreal, Sydney, Cape Town, Milan and Shanghai. Photographs of the Milan, Sydney and Cape Town Branches appear on *pages* 264, 266 *and* 268.

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Awards Conferred Upon  
Burroughs Wellcome & Co.

<u>International</u>	THREE GRAND PRIZES
<u>Exposition</u>	AND
<u>St. Louis, 1904</u>	THREE GOLD MEDALS

<u>International</u>	SIX GRAND PRIZES
<u>Exposition</u>	THREE DIPLOMAS OF HONOUR
<u>Liège, 1905</u>	AND
	THREE GOLD MEDALS

<u>International</u>	THREE GRAND PRIZES
<u>Exposition</u>	THREE DIPLOMAS OF HONOUR
<u>Milan, 1906</u>	AND
	ONE GOLD MEDAL

<u>Franco-British</u>	SEVEN GRAND PRIZES
<u>Exhibition</u>	ONE DIPLOMA OF HONOUR
<u>London, 1908</u>	AND
	TWO GOLD MEDALS

MAKING IN ALL MORE THAN  
220 HIGHEST AWARDS

CONFERRED UPON THE FIRM FOR THE  
SCIENTIFIC EXCELLENCE OF THEIR PRODUCTS  
AT THE  
Great Exhibitions of the World

No Page Number (Just photos and descriptions)

TRADE MARK 'Tabloid' BRAND FOR First-Aid

**Journalists, War Correspondents, Automobilists, Aeronauts,  
Yachtsmen, Sportsmen, Travellers, Tourists, etc.**

Compact outfits of bandages and first-aid accessories, etc., suitable for use when travelling.

Cases  
and  
contents  
are  
of the  
B. W. & Co.  
sterling  
quality

[Photo of Closed Case]

**Price in  
London  
50 / =**

No. 702 'Tabloid' First-Aid (Registered) (Royal Blue enamelled  
leather)—closed. Measurements 7 x 5 ¼ x 2 ¾ in.

**No. 702. 'Tabloid' Brand First-Aid (Registered)**

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as  
"Smelling Salts," 'Borofax,' Hazeline Cream, Sal Volatile, Carron Oil, tourniquet, gutta-  
percha tissue, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and  
'Soloid' Brand products.

In Rex Red, Royal Blue or  
Brewster Green enamelled leather.

[Photo of Open Case]

**Price in London 50 / =**

No. 702 'Tabloid'  
First-Aid (Registered)  
(Brewster Green  
enamelled leather)—  
open

No Page Number (Just photos and descriptions)

'Tabloid' First-Aid

**No. 707. 'Tabloid' Brand First-Aid (Registered)**

Contains 'Tabloid' Bandages  
and Dressings, 'Vaporole'

**Price in  
London**



Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron Oil, plaster, protective skin, pins, etc., and six tubes of 'Tabloid' and 'Soloid' Brand products.

**7/6**

[Photo of Open Case]

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal.

No. 707. 'Tabloid' First-Aid (Registered) (Rex Red enamelled metal). Measurements 6 ½ x 3 ¼ x 2 in.

No. **712**. 'Tabloid' Brand First-Aid (*Registered*)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron Oil, plaster, protective skin, pins, etc., and six tubes of 'Tabloid' and 'Soloid' Brand products.

[Photo of Open Case]

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal.

No. 712. 'Tabloid' First-Aid (Registered) (Brewster Green enamelled metal).  
Measurements 6 ½ x 4 ¼ x 2 in.

**Price in London 10 / =**

No Page Number (Just photo and description)

'Tabloid' First-Aid

The medicinal contents of these cases are selected in view of emergency requirements, but, if desired, they can be fitted with 'Tabloid' and 'Soloid' Brand products selected by the purchaser's physician, so that a prescribed course of treatment may be continued whilst travelling.

No. **715**. 'Tabloid' Brand First-Aid (*Registered*)

[Photo of Open Case]

**Price in  
London  
10/6**

No. 715. 'Tabloid' First-Aid (Registered) (Black Japanned metal)

Measurements: 7 ½ x 4 ¼ x 2 in.

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Sal Volatile, Carron Oil, gutta percha tissue, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised or black japanned metal.

No. **723**. 'Tabloid' Brand First-Aid (*Registered*)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' 'Hazeline' Cream, Sal Volatile, Carron Oil, lancet, tourniquet, gutta percha tissue, plaster, protective skin, scissors, pins, etc., and nine tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal. (*See illustration overleaf*)

No Page Number (Just photos and descriptions)

'Tabloid' Photographic Outfit

*For description, see previous page*

**Price in London**

[Photo of Open Case]

**35 / =**

No. 723. "Tabloid" First-Aid (Registered)  
(Royal Blue enamelled metal)  
Measurements: 8 x 5 ½ x 2 ¼ in.

No. **905**. 'Tabloid' Brand Photographic Outfit (*Registered*)

A complete compact chemical outfit for developing and fixing plates, films, bromide or gaslight papers, and for toning and fixing P.O.P.

Contents make over one-and-a-half gallons of solution.

[Photo of Open Case]

In Rex Red, Royal Blue, Imperial Green or Bright Scarlet enamelled metal, or in black japanned metal.

**Price in London, 5 / =**

No. 905. 'Tabloid' Photographic Outfit  
(Registered). (Bright Scarlet enamelled  
metal). Measurements: 4 x 4 x 2 1/8 in.

The compactness and portability of this case render it particularly suitable for the busy  
Journalistic Photographer and for the War Correspondent.

*For details of 'Tabloid' Photographic Products, see also next page*

Page 277

Photography in Journalism

Photography has assumed in recent years a most important place in journalism. The  
realism of the camera adds materially to the effectiveness of  
the word-picture even when it concerns home news, whilst for  
the war correspondent and travelling journalist it is essential  
that pictorial records should supplement the pen.

The Handmaid  
of Journalism

The difficulty, especially for the journalist in war or abroad, has been that photography  
demanded a considerable addition to the bulk of his equipment,  
and the results were uncertain, owing chiefly to difficulties  
with sensitive chemicals. To-day the camera-maker is able  
to produce instruments of surprising compactness and the  
chemist is able to offer the journalist chemicals which occupy  
a minimum of space and achieve the maximum of efficiency.

Photography  
in War and  
Travel

'Tabloid' Photographic Chemicals are pure chemicals compressed into small bulk, but  
yet more readily soluble than the same chemicals in  
crystallised form. These products each contain a precise  
weight, so that the trouble of weighing or measuring is  
entirely obviated. Simply dropped into a measure-glass  
containing the necessary quantity of water, they disintegrate  
and dissolve with remarkable rapidity.

Chemical  
difficulties  
solved

The advantages which 'Tabloid' chemicals possess in home use are intensified when  
development and similar operations have to be conducted under trying conditions. This  
wonderful compactness is shown by the illustration opposite. A complete chemical outfit  
of 'Tabloid' products is comfortably carried in the pocket or wallet without danger of  
trouble consequent on the breakage of bottles of fluids.

The fact that 'Tabloid' Photographic Chemicals will retain their activity unimpaired, with  
ordinary care, in all climates accounts for their successful use by the leading *War  
Correspondents, Explorers* and travellers of modern days.

Not only do 'Tabloid' Photographic Chemicals rid development, toning and other processes of all the uncertainties which accompany the use of impure chemicals and stale solutions, but

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#### Photography in Journalism

they also remarkably simplify these operations, and impart to them a scientific precision which cannot otherwise be obtained.

All developers and chemicals essential for the practice of photography at home and abroad are issued as 'Tabloid' products, but to meet the special needs of those who, like journalists, travellers and war correspondents, require the utmost condensation and

The Ideal  
developer for  
Journalists  
and War  
Correspondents

the widest utility in the equipment they carry, Burroughs Wellcome & Co. have issued, as the results of special research and wide experience, a developer which is universal in utility and unique in compactness. This is 'Tabloid' 'Rytol' Universal Developer. It is so compact that the materials for 88 ounces of solution occupy only the same space as *one* ounce of fluid. It is so universal in application that it will develop plates, films, bromide and gaslight papers as well as lantern slides with equal facility and equal certainty. It makes a bright clear solution even with water which with ordinary chemicals becomes cloudy and discoloured. The importance of this to travellers who are forced to use whatever is available will be readily appreciated.

#### Correct Exposure in All Lands

The journalistic photographer and correspondent has to be sure of his exposure in all parts of the globe and under a great variety of conditions. He must make certain of securing records of events which will not recur. He must be able to decide on the correct exposure quickly and under a wide variation of place and circumstance. To meet this need, Burroughs Wellcome & Co.'s photographic experts have condensed the results of their special study of the question of exposure into a pocket-book known as The Wellcome Photo-Graphic Exposure Record, and have combined with their own experience that of Journalists, War Correspondents and Travellers in all parts of the globe from the Arctic to the Antarctic. Many methods have been devised for ensuring correct

Certainty in  
exposure  
essential to the  
journalist

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#### Photography in Journalism

exposure—some requiring complicated calculations, others the use of elaborate tables or special apparatus. The simplest and most certain method is provided by the ingenious mechanical Calculator contained

The simple

in each copy of The Wellcome Exposure Record. Its essential way  
feature is a disc, *one* turn of which tells the correct exposure at  
a glance.

The illustration here shown makes its simplicity clear. The central white portion is the revolving disc which registers with the two fixed scales, shown in tint. Facing the Calculator are tables giving light values, so arranged that the table for each month comes to the front in its proper season. The Calculator is set by turning the disc until the subject to be photographed registers with the figure representing the light value. That one turn is all that is necessary. In addition to thus providing an easy way of calculating correct exposure, The Wellcome Exposure Record is a pocket note-book and encyclopædia of photographic information. There are three Editions—(1) Northern Hemisphere, (2) Southern Hemisphere, (3) United States of America. These editions give the information necessary for correct exposure in all parts of the world.

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[Two Illustrations of Medicine Chest]

The Medicine Chest of Queen Mentu-Hotep, who lived 2,200 B.C.

The massive outer case for the chest is shown on the left. It is composed of wood decorated with hieroglyphics, amongst which are the royal cartouche and the figure of a crouching jackal.

The chest itself is depicted on the right. It is composed of plaited papyrus reeds, and is supported on a stand. The chest is divided into six compartments, each containing a beautifully shaped medicine jar of oriental alabaster. Various medicinal roots, and a wooden spoon, the handle of which is ornamented with the head of Hathor, were discovered in the chest.

This unique Egyptian medical equipment was discovered at Thebes, and demonstrates the huge bulk and cumbersome fittings, combined with paucity of supplies, which have been characteristic of medical outfits from the days of the Pharaohs until the introduction of 'Tabloid' products. The modern medical man armed with a 'Tabloid' brand Pocket-Case carries a scientific therapeutic equipment, the equivalent of which in the drugs of antient Egypt could be transported only by a regiment of slaves.

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Historical  
Medical Equipments  
used in  
Military, Geographical  
and  
Journalistic Expeditions

Page 282

[Illustration of Military Medicine Chest]

Military Medicine Chest—1588

Fabricius, a noted Swiss physician of the XVI century, recommended that the military chest should be furnished with no less than 362 varieties of medicine, some of which contained as many as 64 ingredients. The complexity of arrangement, the huge bulk and great weight, the liability to breakage, and the complicated inconvenience of medicine chests persisted until the introduction of ‘Tabloid’ Medical Equipments.

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[Photo of Person’s Hand with Index Finger Supporting Tiny Medicine Chest]

The Smallest Medicine Chest in the World

This tiny gold medicine chest is fitted with twelve square medicine chest bottles containing 300 doses of ‘Tabloid’ Brand Medicaments, equivalent to 15 pints of fluid medicine.

Page 284

[Drawing of Planet Earth]

‘Tabloid’ Medical and First-Aid Equipments

Have reached the North Pole, and as near to the South Pole as man has gone

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HISTORICAL MEDICAL EQUIPMENTS

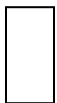
For Military, Geographical and Journalistic Expeditions

The Medical Equipments of the present day differ notably from those of olden times in two distinct directions—diminished bulk, and in purity and efficacy of content. This improvement has only been effected in the last quarter century and mainly by B. W. & Co.; before that time, campaigning medicine chests had to be either of enormous and unwieldy size, or, if small, they could contain only the most meagre supplies.

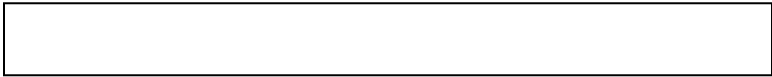
In the Middle Ages, owing to the great variety and bulky nature of the remedial agents used, medicine chests employed in military campaigns

Assumed enormous proportions, and it was not until the middle of the nineteenth century that progress was made towards reducing the bulk of campaigning medical outfits.

Bulky yet  
inadequate  
equipments



Size of one product of ‘Tabloid’  
Cinchona Tincture, min. 30



Length of 30 min. tube of same  
diameter as ‘Tabloid’ product

Early explorers, particularly in Africa, found the difficulties of procuring suitable portable medical supplies practically insuperable, and the horrors of disease and death associated with their expeditions were almost beyond description.

“When I think [said the late Sir H. M. Stanley, in the course of one of his lectures] of the dreadful mortality of Capt. Tuckey’s Expedition in 1816, of the Niger Expedition in 1841, of the sufferings of Burton and Speke, and of my own first two expeditions, I am amazed to find that much of the mortality and sickness was due to the crude way in which medicines were supplied to travellers. The very recollection causes me to shudder.”

A famous  
Journalist  
on early  
expeditions.  
Mortality  
due to crude  
medicines

Page 286  
[Drawing of Ship and Explorers]  
‘Tabloid’ Medical Equipments  
In Arctic and Antarctic Exploration

Page 287  
Historical Medical Equipments

That a very marked change has taken place can be gathered from a more recent speech of this eminent explorer and journalist, in which he said:—

In my early expeditions into Africa, there was one secret wish which endured with me always, and that was to ameliorate the miseries of African explorers. How it was to be done I knew not; who was to do it, I did not know. But I made the acquaintance of Messrs. Burroughs Wellcome & Co. As soon as I came in sight of their preparations and their works, I found the consummation of my secret wish. On my later expeditions I had all the medicines that were required for my black men, as well as my white men, beautifully prepared, and in most elegant fashion arranged in the smallest medicine chest it was ever my lot to carry into Africa.

B. W. & Co.  
solved the  
problem

[Drawing of Medicine Chest]  
One of the ‘Tabloid’ Brand Medicine Chests carried by the late Sir H. M. Stanley through “Darkest Africa,” and brought back, after three years’ journey, with the remaining contents unimpaired.

In his books, *Founding the Congo Free State* and *In Darkest Africa*, the late Sir H. M. Stanley wrote in the very highest terms of ‘Tabloid’ Medical Equipments.

Amongst other cases used during Stanley’s travels is the famous “Rear-Guard” ‘Tabloid’ Medicine Chest, which remained in the swampy forest regions of the Aruwimi for nearly four years, and more than once was actually submerged in the river. When it was brought back to London, the remaining contents were tested by the official analyst of *The Lancet* (London, Eng.), who reported that the ‘Tabloid’ medicaments had perfectly preserved their efficacy.

Tested by  
“The  
Lancet”

Page 288  
[Drawing of People and Horse]  
‘Tabloid’ Medical Equipments  
In Morocco

Page 289  
Historical Medical Equipments

The late Surgeon-Major Parke, Stanley’s Medical Officer, in his *Guide to Health in Africa*, writes:—

The medicinal preparations which I have throughout recommended are those of Burroughs Wellcome & Co., as I have found, after a varied experience of the different forms in which drugs are prepared for foreign use, that there are none which can compare with them [‘Tabloid’ products] for convenience of portability in transit, and for unfailing reliability in strength of doses after prolonged exposure.

Unfailing  
reliability,  
portability  
and con-  
venience

At this point it is of interest to turn to the ‘Tabloid’ Medicine Chest, here illustrated, which was discovered near Kenia, in the Aruwimi Dwarf Country. It was the last chest supplied to Emin Pasha, Gordon’s Governor of the Equatorial Soudan. This chest was taken by Arabs when Emin Pasha was massacred in 1892, and was recaptured by Baron Dhanis, Commandant of the Congo Free State troops, after the battle of Kasongo. It was subsequently stolen by natives, and finally recovered by an officer of the Congo Free State, and returned to Burroughs Wellcome & Co.

Emin Pasha

The following is a copy of Emin Pasha’s letter written to Burroughs Wellcome & Co. on receiving the chest:—

Gentlemen,—I found the medicine chest you forwarded me fully stocked. I need not tell you that its very completeness made bound my heart. Articles like those

[Drawing of Closed Medicine Chest]  
Emin Pasha’s ‘Tabloid’ Brand Medicine Chest



could not be made but at the hand of the greatest artists in their own department. If any one relieved from intense pain pours out his blessings, they will come home to you.

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[Drawing of Group of Marching Men]  
'Tabloid' Medical Equipments  
In Central Africa

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Historical Medical Equipments

I should like to expatiate somewhat longer on the intrinsic value, but sickness preventing me to do so. I wish you to believe me,

*Yours very faithfully*  
*Dr. Emin Pasha*

Another case associated with Stanley is the raw-hide 'Tabloid' Medicine Chest used by Thomas Stevens, the well-known journalist who travelled round the globe on a bicycle, and was the hero of other pioneer exploits in different parts of the world. Stevens was the first to greet the great explorer on his return to civilisation, and during his twelve months' journeyings in Masailand and German East Africa, was greatly impressed with the portability and compactness of his medical outfit, and with the efficacy of its

Thos.  
Stevens'  
'Tabloid'  
Medicine  
Case

[Drawing of Medicine Case]  
Thomas Stevens' 'Tabloid' Brand Medicine Case

contents. In his book, *Scouting for Stanley in East Africa*, he wrote: "Stanley, in recommending these Medicines ['Tabloid' products], has earned the gratitude of every man who goes to a tropical country."

A history of all the 'Tabloid' equipments associated with African exploration would, of itself, make a large volume, and it is only possible to make brief mention of a few other instances of their use.

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[Drawing of Man on Camel with Pyramid and Sphinx in Background]  
'Tabloid' Medical Equipments  
In Egypt

Page 293

Historical Medical Equipments

That ‘Tabloid’ Equipments excel for military purposes has been abundantly demonstrated during various British and foreign military campaigns. The following is an extract from the Official Government Report, made by the Chief Medical Officer of the last British Military Expedition to Ashanti, on the ‘Tabloid’ Brand Medical Equipment which was supplied by Burroughs Wellcome & Co.:—

Military  
expeditions

The supply of medicines, both as to quality and quantity, left nothing to be desired. There was no scarcity of anything. The ‘Tabloid’ medicines were found to be most convenient and of excellent quality. To be able to take out at once the required dose of any medicine, without having to weigh or measure it, is a convenience that cannot be expressed in words. Time is saved to an extent that can hardly be realised, and so is space, for a fitted dispensary, or even a dispensary table, is unnecessary. The quality of medicines was so good that no other should be taken into the field. The cases supplied are almost ideal ones for the Government. They are light, yet strong, and the arrangement of the materials and medicines is as nearly perfect as possible.

No delay to  
weigh or  
measure

Quality so  
good, no  
other  
should be  
taken into  
the field

It is instructive to compare the experience of this Expedition with that of the Wolseley Ashanti Expedition of 1873, fitted out according to old-time methods. The suffering and loss of life were then terrible, for want of suitable medical equipments.

Without exception, ‘Tabloid’ Medical Equipments have been used in all the campaigns of the last twenty-five years, and have played an important part in combating the diseases which seem inseparable from an army in the field.

During the American war with Spain, in Cuba and the Philippines, ‘Tabloid’ Medical Equipments were specially ordered for, and used by, the U.S. Army and Navy.

The Expedition which, under the command of Lord Kitchener, defeated the Khalifa and reconquered the Soudan, was supplied with ‘Tabloid’ Medical Equipments.

An illustration of one of the ‘Tabloid’ Medical Equipments specially designed for, and supplied to, the British Colonial

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[Drawing of Group of Marching Soldiers]

‘Tabloid’ Medical Equipments

In Thibet

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Historical Medical Equipments

Forces for use in the recent South African Campaign is here shown. Similar cases were designed for, and supplied to, the City Of London Imperial Volunteers and Imperial Yeomanry.

[Drawing of Medicine Case]

One of the 'Tabloid' Brand Medicine Cases specially designed for, and supplied to, the troops from the various British Colonies, for use in the South African Campaign.

The equipment of the American Hospital Ship *Maine*, and the valuable services it rendered in connection with the campaigns in South Africa and in China, are so recent as to be within the memory of all. The whole of the medical outfit was supplied by Burroughs Wellcome & Co.

Hospital  
Ship  
"Maine"

[Drawing of 'Tabloid' Brand Medicine Chest]

One of the 'Tabloid' Brand Medicine Chests specially designed for, and supplied to, the Hospital Ship *Maine*.

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[Drawing of Man with Bar across his Shoulders carrying Medicine Chests on each end]  
'Tabloid' Medical Equipments  
In China

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Historical Medical Equipments

Referring to this equipment, *The Lancet* (London, Eng.) reported:—

**The whole of the medical outfit has been supplied by Messrs. Burroughs Wellcome & Co.** One of the medicine chests supplied by this firm is in tooled leather, designed by Mr. Henry S. Wellcome.

The following description of this chest may be of interest:—

The chest is made of oak covered with Carthaginian cowhide, tooled by hand, with chaste designs successfully representing in allegory the alliance of Great Britain and America in the succour of the wounded. On the top panel appear the Union Jack and the Stars and Stripes entwined, portraits of Queen Victoria, George Washington and President McKinley; also representations of the British Lion and American Eagle. The front panel bears portraits of Lady Randolph Churchill (Mrs. George Cornwallis-West), the hon. secretary and the hon. treasurer of the fund; a picture of the ship itself; a scene representing the British Lion, wounded by an arrow which lies at his side, being ministered to by Britannia and Columbia. A frieze is formed by a representation of an American Indian wampum, upon which Brother Jonathan and John Bull are depicted hand-in-hand. The panel at each end of the chest represents Britannia and Columbia supporting a banner bearing the Red Cross, and on the panel at the back the British

Regular and Colonial Lancers are shown charging a Boer force. Keble's line, "No distance breaks the tie of blood," and Bayard's phrase, "Our kin across the sea," are inscribed on the chest. This beautiful cabinet contains a number of smaller cases fitted with 'Tabloid' and 'Soloid' products and 'Tabloid' Hypodermic Outfits, and is in itself a compact and complete dispensary.

In addition to their adoption by military and naval authorities, 'Tabloid' Medical Equipments have been used by the War Correspondents who have accompanied all modern expeditions.

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Historical Medical Equipments

The conclusive proofs afforded by all these campaigns and expeditions of the incomparable utility of the B. W. & Co. equipments, under circumstances of the most trying nature, naturally led to their still more extensive employment in South Africa during the late war. The trying conditions of transport and the climate influences were just such as 'Tabloid' Equipments and 'Tabloid' Equipments only, had been proved, by earlier experience, to be capable of resisting. Constant references were made to the adequacy and efficiency of the equipments supplied.

#### A WAR CORRESPONDENT'S EQUIPMENT

[Drawing of Open Medicine Chest]

The Late G. W. Steevens' 'Tabloid' Brand Medicine Chest

An equipment of the greatest personal interest is the chest here illustrated. It was formerly the property of the late G. W. Steevens, and used by him throughout the war in Greece, the two Soudan campaigns, and his journey in India. In the South African War the same chest did good service until this brilliant writer's life was brought to a premature end during the siege of Ladysmith.

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Historical Medical Equipments

#### IN ARCTIC AND ANTARCTIC EXPLORATION

In the hitherto unsuccessful endeavours to reach the Poles, and in the exploration of Arctic and Antarctic lands, 'Tabloid' Medicine Chests have taken a pioneer position, and continue to hold supremacy.

The 'Tabloid' Belts and other Medical Equipments supplied to Nansen for his journey in the *Fram*, and those used by the Jackson-Harmsworth Arctic Expedition, have been added to the historic collection of Burroughs Wellcome & Co.

A famous  
journalistic  
enterprise

[Drawing of 'Tabloid' Brand Medicine Belt]

One of the 'Tabloid' Brand Medicine Belts carried by Nansen on his Arctic Expedition.

The Italian Arctic Expedition, commanded by the Duke of the Abruzzi, found that, despite the fact that the northern latitude of 86° 33' 49" was reached, the 'Tabloid'

[Drawing of Medicine Case]

One of the 'Tabloid' Brand Medicine Cases carried by the Duke of the Abruzzi's Polar Expedition.

Medicine Chests and Cases with which the Expedition was equipped were brought back with their remaining contents quite unaffected by the rigour of the climate.

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Historical Medical Equipments

Commander Peary, to whose record stands the achievement of reaching the farthest northern latitude, writing from Etah, Greenland, reports:—

Burroughs Wellcome & Co. 'Tabloid' Medicine Cases and supplies have proven invaluable.

The entire medical outfit of the National Antarctic Expedition was furnished by Burroughs Wellcome & Co.,

[Drawing of Open Medicine Chest]

One of the 'Tabloid' Brand Medicine Chests used by Commander R. E. Peary

and on the return of the *Discovery*, with the members of the Expedition on board, the medical officer made a highly satisfactory report on the 'Tabloid' Medical Equipment.

In August, 1901, the *Discovery* left England, and, in the following January, crossed the limit of the Antarctic Circle.

[Drawing of Closed Medicine Case]

One of the 'Tabloid' Brand Medicine Cases carried by the National Antarctic Expedition.

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Historical Medical Equipments

Having passed the farthest eastward point attained by Ross sixty years before, the explorers discovered a new land, which they named King Edward VII. Land. One of the most note-worthy features of the Expedition was the arduous sledge

[Drawing of Large Closed and Locked Chest]

journey undertaken by the commander, Captain Scott, accompanied by Lieutenant Shackleton and Dr. Wilson. This journey over the ice occupied three months, and the latitude of 82° 17' South was reached.

On sledge journeys the question of weight is of great moment. The traveller on such occasions must carry but the barest necessities, and of these the lightest procurable. The medicine chest is an important item, for upon the efficacy of its contents the lives of the explorers may depend. Every drug carried must be of the utmost reliability, in the most compact state, and capable of withstanding an extremely low temperature.

Reliability  
essential

That 'Tabloid' Medical Equipments fulfil all requirements has been proved again and again. They enable the traveller to carry a comparatively large supply of medicines, and may be used under conditions which would render the carriage and administration of ordinary preparations impossible.

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Historical Medical Equipments

To the enthusiasm of Sir Clement Markham, K.C.B., then President of the Royal Geographical Society, the successful organisation of the National Antarctic Expedition was largely due. Referring to the 'Tabloid' Medical Equipment of the *Discovery*, he reports:—

National Antarctic Expedition,  
I, Savile Row,  
Burlington Gardens, W.

The Medical Equipment of the Exploring Ship of the National Antarctic Expedition was entirely supplied by Messrs Burroughs Wellcome & Co., and, proved in every way most satisfactory.

The few other drugs and preparations which were taken with the Expedition were only supplied for purposes of experiment, and, can in no way be regarded as part of the medical equipment.

*Clement R. Markham*

27 April 1905.

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Historical Medical Equipments

Dr. Kœttlitz, the Senior Medical Officer to the Expedition, reports:—

*Discovery*, Antarctic Expedition

The Medical Equipment of the *Discovery* Exploring Ship, of the National Antarctic Expedition, was entirely supplied by Messrs. Burroughs Wellcome & Co., mostly in the form of 'Tabloid,' "Soloid" and 'Enule' preparations.

The preparations proved in every way most satisfactory, and there was no deterioration of any of them, in spite of the conditions of climate and temperature to which they were exposed. The few other drugs and preparations which were taken with the Expedition were only taken for purposes of experiment.

The cases supplied by Burroughs Wellcome & Co. to us have also been found satisfactory; the small leather one was very useful upon sledge journeys, being light and compact. The No. 251 'Tabloid' Case was used for some weeks at the camp eleven miles north of the ship, when the whole ship's company was engaged in sawing and blasting the ice, and it was found very convenient.

The other cases were useful in our cabins, etc., for a handy supply.

*Reginald Kættlitz*

#### EXPERIENCE OF AN ENTERPRISING JOURNALIST

Mr. Julius Price, the special artist and correspondent of the *Illustrated London News*, reports that he carried his 'Tabloid' Medicine Case over 30,000 miles through Arctic regions, across Siberia, through China, Japan and America. Despite the severe wear and tear of this great journey, the case has suffered little, and the remaining contents are quite unaffected by exposure to every variety of climate.

30,000 miles  
Arid desert  
and humid  
swamps  
Extreme  
heat and  
cold

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#### Historical Medical Equipments

Two typical reports on 'Tabloid' Equipments are appended:—

Extract from the report of R. F. Rand, Esq., M.D., F.R.C.S., Principal Medical Officer, British South Africa Company:—

We have had Burroughs Wellcome & Co.'s "Congo" Chest, fitted with 'Tabloid' medicines, in daily use during the occupation of this country. They have proved of inestimable service.

Extract from the report of the late W. H. Crosse, M.D., M.R.C.S., Principal Medical Officer, British Royal Niger Company:—

All these 'Tabloid' drugs are so good it is impossible for me to speak more highly of one than another. They are all of the very best quality, each drug is accurately described, and reliable. To the traveller these preparations are simply invaluable, and I would strongly advise every one coming out to the Tropics to get a full supply of 'Tabloid' medicines.

Study of  
medicines  
suitable  
for every  
climate

Burroughs Wellcome & Co. have for many years made a special study of the requirements of travellers and expeditions, not only in respect of compactness, portability and permanence, but also in the selection of remedies necessary to combat the maladies prevalent in every clime, from the Arctic to the Antarctic.

‘Tabloid’ Brand Medicine Cases contain, in a small space, a complete outfit of pure drugs in doses of extreme accuracy. They can be carried in the pocket, in the carriage or motor-car, or on the cycle, their contents being always ready for use in emergencies. They are specially valuable to the country practitioner, who is often called upon to cover long distances, and who would experience great difficulty in carrying or obtaining supplies of such medicines as he may desire to administer promptly, were it not for the convenience and portability of ‘Tabloid’ Brand Medicine Cases.

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Trade  
Mark ‘Tabloid’ Brand

PLEATED COMPRESSED

## Bandages and Dressings

**Pleated Compressed Bandages and Dressings were originated and introduced by Burroughs Wellcome & Co.**

‘Tabloid’ Bandages and Dressings provide the means of applying strictly scientific treatment, and in cases of accident enable those on the spot to render first-aid treatment should medical assistance be unavailable or delayed. Their use in such emergencies may prevent serious complications which frequently arise in minor accidents, and from the neglect of wounds, abrasions, etc.

In  
emergencies

[Drawing of Ordinary and ‘Tabloid’ Bandage]

Graphic representation showing relative bulk of an ordinary and a ‘Tabloid’ Bandage, each 6 yds. x 2-1/2 in. One-half actual size

‘Tabloid’ Bandages and Dressings are made of materials of the finest quality, very highly compressed. Each is enclosed in an efficient protective covering, thus securing freedom from all risk of contamination. For all purposes, whether at home or when travelling, they are superior to the ordinary varieties and their advantages are obvious.

Ideal for  
general  
use



**NOTE.—A further important advance, original with B. W. & Co., is the issue of these ‘Tabloid’ Bandages and Dressings—*sterilised*. When ordering, please specify *sterilised* if so required.**

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“The strong thing is the just thing”  
*Carlyle*

‘Tabloid’ marks the work of Burroughs Wellcome and Company.

The use of the word is to enable the physician, chemist and patient to get the right thing with one short word, instead of the firm’s long name.

If another maker applies the word to his product, the act is unlawful. ‘Tabloid’ is our trade-mark.

If a vendor disregards it, in dispensing or selling, the act is unlawful—for the same reason.

We prosecute both offenders rigorously, in the interest of physicians, chemists, patients and ourselves.

Please inform us of any instance of either offence.

Burroughs Wellcome & Co.

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[Photo of Burroughs Wellcome & Co. Fire Brigade]  
Drill of Burroughs Wellcome & Co.’s Fire Brigade

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[Drawing of Rectangles] (see description below)  
Graphic Representation of the Increase in the Firm’s Premises during the Quarter-Century of Mr. Sudlow’s General Managership

The small black rectangle represents the premises occupied when Mr. Sudlow joined the firm. In twenty-five years the premises occupied have increased more than 800 times, as represented by the white rectangles above.

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[Photo showing Front and Back of a Gold Medal for Robert Sudlow]

Obverse and Reverse of a Gold Commemoration Medal

Specially designed and struck in honour of Robert Clay Sudlow, and presented to him in commemoration of his loyal and efficient services to the firm for more than a quarter of a century

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[Drawing of Naked Boy w/Ribbon Standing on Top of a Beehive Holding a Star with the Letters BW&Co.]

By Chemical Industry We Thrive

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[Drawing of Beehive, Trees, Flowers, Bees and Butterflies]

At Top of Page the words in banner THERE'S A TIME FOR WORK

In Middle of Page the words Welfare Work

At Bottom of Page the words AND A TIME FOR PLAY

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[Drawing of Buildings, Road and People]

Bird's Eye View of Wellcome Club and Institute

Buildings and Grounds

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The Wellcome Club and Institute

“And all this house was peopled fair  
With sweet attendance, so that in each part  
With lovely sights were gentle faces found.  
Soft speech and willing service; each one glad  
To gladden, pleased at pleasure, proud to obey.”

*Sir Edwin Arnold*

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“The true veins of wealth are purple—not  
in rock, but in flesh—and the final out-  
come and consummation of all wealth is  
in producing as many as possible full-  
breathed, bright-eyed and happy-hearted  
creatures.”

*Ruskin*

### Objects of the Wellcome Club and Institute

From the first, Welfare Work has been a special feature with the firm. This Club and Institute is a part of the general scheme, and was founded for the benefit of the employees of Burroughs Wellcome & Co. who number more than sixteen hundred of both sexes, including a large number of professional scientific workers. The premises consist of the old manor house formerly known as Acacia Hall, together with other buildings which provide libraries, reading rooms, assembly rooms, a gymnasium, and extensive grounds through which the river Darent runs.

The objects of the club are—to promote harmony and happy social intercourse amongst the employees and to supply them with a pleasant resort outside of business hours—to encourage mental and physical recreation by means of music, literary and other entertainments, technical and other instruction classes with occasional lectures, and athletics, field sports and games.

The Executive Committee of the club regulates the conduct of the club and controls the use of the river for boating, swimming, fishing, etc., as well as the library, museum, baths, games and various other features. All suitable technical journals and a large selection of newspapers, magazines, etc., are available in the reading rooms.

All employees willing to attend the Dartford Technical Institute have their fees paid, and the firm gives prizes through the Institute for proficiency in the technical subjects in which it is interested.

[Drawing of Club House for Staff Members]

#### Club House for Members of the Staff

Containing music room, ladies' sitting, dining, writing and dressing rooms; gentlemen's sitting, dining, writing, and smoking rooms; secretarial offices, and committee rooms

### INAUGURATION OF THE WELLCOME CLUB AND INSTITUTE, JUNE 24, 1899

*(Reprint from Press Report)*

[Drawing of  
The  
Golden  
Key]

One of the most interesting events which have taken place in the town of Dartford for many years past was the opening of the Wellcome Club and Institute. When it is remembered that the prosperity of the town is so closely identified with that of its

greatest industry, it is not surprising that Saturday's event evoked so much enthusiasm throughout the district. Messrs. Burroughs Wellcome & Co. have always been recognised as model employers, and the events of the day bore eloquent testimony not only to this kindly consideration of the welfare of their employees, but also to the precision, exactness and marvelous organisation which has always characterised their work.

The club has been founded by Mr. Wellcome, the head of the firm, to provide the employees with opportunities for recreation, and for promoting technical education. With these ends in view, he acquired the Manor House, commonly known as Acacia Hall. Together with its beautiful and extensive grounds, through which flows the river Darent. The manor house itself and the adjoining buildings have been elaborately fitted and furnished to meet the new requirements. A large gymnasium and extensive baths and lavatories with the most perfect modern fittings have been built, and the grounds beautifully laid out for the purposes of enjoyment and recreation.

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[Drawing of The Library Building and Club House for Lady Employees]

The Library Building and Club House for Lady Employees

Ground floor: ladies' tea rooms. First floor: ladies' sitting, sewing and writing rooms. Second floor: reading room and library. Third Floor: general concert and lecture hall

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Wellcome Club and Institute

No pains or expense have been spared in any direction, and it is doubtful if there is any body of employees in the world which can boast of so magnificent a club and pleasure park.

The Day's Proceedings

The proceedings on Saturday were favoured with perfect weather, and great credit is due to those responsible for the arrangements, which were admirably carried out. At 11 a.m., immediately after the special train conveying the London visitors steamed into Dartford station, the day's programme commenced with a fire drill at the firm's works and laboratories. From the station platform an excellent view was obtained. Sir Hiram Maxim, the distinguished engineer, who was present, timed the display and stated that the streams of water from four principal points were in full play within two minutes of the sounding of the alarm which called out the firemen.

Service at the Parish Church

The company then proceeded to the historic old Parish Church, which was quickly filled by the visitors and the firm's employees. The service, conducted by the Rev. E. P. Smith, Vicar of Dartford, was, although simple and undenominational in character, a beautiful and impressive ceremony, in which were appropriately included the following texts:—

“Bear ye one another’s burdens, and so fulfil the law of Christ.”

—*Gal. vi. 2.*

“And that ye study to be quiet, and to do your own business and to work with your own hands, as we commanded you; that ye may walk honestly towards them that are without, and that ye may have lack of nothing.”—*1 Thess. iv. 11 and 12.*

The service over, the party, headed by visitors and the principal members of the staff, accompanied Mr. Wellcome from the church to the gates of the club, where Mr. Sudlow, the general manager, presented his chief with a golden key.

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[Drawing of the Club House for Gentlemen Employees]

Club House for Gentlemen Employees

Containing sitting, writing, smoking, tea rooms, etc.

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Wellcome Club and Institute

Mr. Sudlow said: “Mr. Wellcome, the members of the management in London and at Dartford beg your acceptance of this key as a memento of this very interesting occasion.”

Mr. Wellcome unlocked and swung open the gates, saying: “I declare this Club and Institute now open, and may God bless and prosper it.” The visitors were then conducted over the club buildings and through the grounds, which were much admired.

The Luncheon

At 12:30 an adjournment was made for luncheon. About eleven hundred sat down to an excellent repast in an enormous marquee erected in the club grounds, all the company except a few visitors being employees and wives of employees. Mr. Wellcome acted as chairman and Mr. Sudlow as vice-chairman. After the loyal toasts—

The Toast of the Day

“The Employees—Success to the Wellcome Club and Institute”

The Chairman said: “Most of those assembled here to-day are employees of the firm. People often speak to me with wonderment at the good relations which exist between the firm and its employees, and the explanation which I have always been able to give in reply to such comments is that there is mutual consideration. It is and always has been the policy of the firm to consider the welfare of everyone associated with it, and by our bearing, our warmth of feeling, and our interest in the welfare of our employees we have won consideration from them, and we have a corps of employees, which, I am proud to

say, I believe surpasses any similar body of people employed by any other firm in the world.

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[Drawing of Gymnasium and Assembly Room]

Gymnasium and Assembly Room

Fully equipped with all apparatus necessary for the practice of indoor athletics

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Wellcome Club and Institute

“By our care in selecting those who possess not alone the required talents and qualifications, but who are also in hearty sympathy with us in our unique work, and by fostering mutual regard, we secure not only the hand work, but the heart work, of those who are associated with us. We have not only efficiency and devoted zeal amongst our great chiefs who form our Managerial Staff, and in the distinguished Directors of my Chemical Research Laboratories and of the Physiological Research Laboratories, but also expert workers as Heads of Departments, and again in the personnel of their staffs, and yet again amongst the rank and file. I must pay a special tribute to the efficiency of the Ladies’ Departments, so ably presided over by the talented Lady Superintendent, ably supported by a highly-qualified staff of lady assistants, some of whom are efficient scientific workers.

“It is peculiarly gratifying to me to-day, in inaugurating this club, to feel that I meet with those associated with me heart to heart. A strong spontaneous expression has come to me from the employees which accords perfectly with my own ideas and sentiments that this club should not be regarded as a charitable institution, but should be self-supporting. I want it to be a resort and meeting place for the promotion of harmony and happiness amongst the employees—an institution for mental and physical recreation and development, where all shall be knitted closer together in personal friendship. I am certain that a charitable institution, or what is usually so-called, is not what we want. None of the employees of Burroughs Wellcome & Co., I am thankful to say, are in need of charity. They are self-respecting, self-reliant, and self-supporting, and I want them always to continue so. I am doing, and shall do, all I can practically to facilitate the work of organisation and equipment. The premises, suitably furnished and maintained, I am very gratified to offer for the purposes of the club and institute.

“I rely upon the members working hand in hand and heart to heart to make a success of this institution on a self-supporting

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[Drawing of Bridge Over Darent]

Bridge Over The Darent

Connecting the lawn with the orchard, garden and playing fields

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Wellcome Club and Institute

basis. It is my strong desire that every employee will become a member of the club and institute. We shall have an administrative committee, but also every member of the club should regard himself or herself as a member of a grand committee with duties to perform. It is essential to the success of this club that the members should all strive to bury every selfish desire in order to promote the happiness of their associates. We had some beautiful texts this morning during the inaugural service at the church. I want to recall one—‘Bear ye one another’s burdens.’ We know that those who seek their own selfish gratification in this world are the least happy, and those who try to bear each other’s burdens and to assist each other, get the greatest happiness to be found in this life. Following such a course requires self-sacrifice, and I hope everyone will keep this text in view, and that it will be the first and constant thought and endeavour of members of this club and institute to make others happy.

“I cannot sufficiently express to the members of the Management at London and Dartford, who have presented me with a golden key with which to unlock the gates of this club and institute, how deeply touched I am by this expression of their kindness. I am always receiving kind consideration and support from these, my valued associates. I shall always treasure this jewel. Those beautiful giant storks, in antique bronze, which grace the fountain immediately within the entrance to the grounds, were presented to us by Mr. Lloyd Williams, of the Works Management. We all deeply appreciate his generous gift of these superb works of art. Let us drink heartily the toast ‘The Employees, and Success to the Wellcome Club and Institute,’ and I associate with the toast the name of Mr. R. Clay Sudlow, our esteemed General Manager, the oldest member of our staff, and my invaluable right-hand support in the direction of this great business.”

Mr. R. Clay Sudlow replied: “Before I refer to the toast that has been so very kindly proposed from the chair,

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[Drawing of Garden Creek]

The Garden Creek

Is a tributary of the Darent, dividing the orchard from the kitchen garden

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Wellcome Club and Institute

I believe I shall be expressing the feelings not only of the employees, whom I am very proud to represent, but also of the visitors who have honoured us with their presence, when I say how glad we are to have Mr. Wellcome with us to-day in renewed health. He is the hardest worked and the hardest working member of our large community, and it is a matter for very sincere rejoicing that, after another twelve months of incessant thought and labour in the conduct of this huge and ever-increasing business, he is able to preside over us on this unique occasion, this red letter-day in the annals of the firm, with his accustomed force and vigour.

“I cannot but think that the knowledge gained by us here this morning as regards the extent of the provision made for our comfort and happiness, of the advantages and privileges secured to us by this club and institute is a perfect revelation. The idea of this club, as we all know, originated with Mr. Wellcome. It is absolutely his creation, and we owe him a very deep and a lasting debt of gratitude for the initiation of the scheme, and for the immense amount of thought and study that he has so ungrudgingly given, in order to make this club perfect and complete in every detail.

“If I mistake not, our visitors have already come to the conclusion that to be an employee of the firm of Burroughs Wellcome & Co. is to occupy a very happy and a very privileged position. As the oldest member of that body—next year I shall attain my majority in Mr. Wellcome’s service—I am glad to assure our visitors that their conclusion is an absolutely just one. Mr. Wellcome has proved himself a master whom it is at once a pride, a pleasure, and an honour to serve, and there are many of us here present to-day who, having given him our best, feel that we fall very short of the service that we would desire to render him.

“Mr. Wellcome, you have told us that you do not want, and that you do not look for thanks, but I do hope that you will

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Drawing of Sports Field

The Sports Field

The first of the playing fields

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Wellcome Club and Institute

allow us to express our very deep appreciation of your generous kindness in placing this club at our disposal, of the personal feeling you have thrown into the undertaking by loaning to the club many of those treasures that you have been at such pains during many years to collect, and of your friendly goodwill in allowing us, in accordance with our unanimous wish, to call this club by your own name. We sincerely hope that you will be spared for many years to witness, and to rejoice in, the complete fulfilment of the high ideal that you have formed with regard to your employees, and may that realisation be brought about in a great measure by means of the Wellcome Club and Institute, so happily and so successfully inaugurated to-day.”

Toast: “The Firm.”

Professor John Attfield, F.R.S., said: “I have the great honour of asking you to drink to the continued prosperity of the firm of Messrs. Burroughs Wellcome & Co. I have known the members from the foundation of this great firm—the firm which began in so small a way, and which has developed to such enormous proportions. I assume that everyone present is interested in the leading work of this firm, which is the association of scientific and commercial pharmacy.



“The firm is distinguished in many ways. It is distinguished for its progressive spirit. I look at the various journals of pharmacy and medicine that are published in our Colonies and India, as well as those published in the United Kingdom, and I never take up one but I find the mention, and sometimes a very long mention too, of this great and powerful and successful firm. A second great characteristic of the firm is the entire reliability of all the articles it sends out. I am sure no one could have followed its development without noticing the wonderful originality that has always characterised it; and I may add that

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[Photo of Staircase]

Staircase

Staff Club House

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Wellcome Club and Institute

all this is chiefly due to the present head of the firm, Mr. Wellcome, and his wonderful skill in organisation in every department.

“Talking of organisation, we who are here to-day as visitors, must, I am sure, have been charmed by the evidence of organisation which we have seen from the time we left Charing Cross till the present moment. The great comfort of the arrangements of that special train that was provided for us; and, when we had arrived at Dartford station, the very interesting fire alarm drill, with its wonderful evidence of promptitude and precision; the extremely beautiful and, I may add, poetic inauguration service at the church, and the interesting, though it has been termed formal, opening of the Club and Institute, by Mr. Wellcome. I was very proud indeed, seeing that I have known the principals of the firm for so many years, and have watched their progress, to be the first one welcomed on this occasion by Mr. Wellcome when he opened the gates with that beautiful golden key, which has been presented to him by his managers.

“I feel sure you will respond to this toast for, perhaps, a deeper reason than I have offered you up to the present time, and this is the spirit which characterises this firm from beginning to end, and which I take to be, first, the promotion of scientific and commercial research, and secondly, the promotion of good-fellowship amongst all the employees. Now, here I venture to speak, as Mr. Wellcome said, from the heart to the heart, because of my extreme interest in all that relates to research in pharmacy and the promotion of friendly intercourse amongst those who follow that calling. It is now 36 years since a few of us assembled in a very small room at Newcastle, and ventured to start an association (The British Pharmaceutical Conference) having objects which I find here to-day reflected in one of the greatest firms of the world—that is, the promotion of research in connection with pharmacy, and the promotion of

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[Photo of Sitting Room]

Sitting Room

Staff Club House

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Wellcome Club and Institute

good fellowship amongst the followers of that calling. I allude to it as I want to remind you once more that the objects of that society, which we ventured to set forth as objects that could be followed by the principals and by the employees of every pharmacy in this country, are the principles which are so successfully prosecuted by the firm of Burroughs Wellcome & Co.

“I cannot but rejoice and congratulate Mr. Wellcome on the fact that, in addition to his organisation of scientific and commercial research coupled with good fellowship, as indicated by this club, enormous financial success, which has been abundantly deserved, has been realised.

“I must allude, before I sit down, to one other great pleasure that has forced itself upon me, though I must not say much about it, because a compliment to myself is in it, and that is that in every department of this great firm I find myself here to-day welcomed by my old pupils. Their merits have been realised by this firm, and I can assure them, though I am perfectly certain they need no such assurance, that the men they have obtained from the Bloomsbury Square Laboratories and Lecture Rooms were some of our brightest ornaments during the whole time I was connected with that Institution, viz., from 1863 to 1896. I come here and I find Mr. Lloyd Williams, Dr. Jowett, Mr. Carr, and many others—but really they are too numerous to mention—all old students who distinguished themselves at Bloomsbury Square, now occupying prominent and responsible positions in this firm.

“On all these grounds, and you will see I have given you a wealth of reasons, I heartily offer the toast to Messrs. Burroughs Wellcome & Co., and I will associate with the toast the name of the chief ornament of the firm, Mr. Henry S. Wellcome.”

Mr. Wellcome replied: “No one could fail to be deeply gratified by the honour Professor Attfield has done to our firm

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[Photo of Music Room]

Music Room

Staff Club House

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Wellcome Club and Institute

and to me. I, as a youth, took my first lessons in chemistry from Professor Attfield’s textbook. This great master led my first steps in gaining a knowledge of chemistry, and I feel it a peculiar honour that he should have paid such a tribute to the results of the efforts to which I have devoted my life. I am obliged to acknowledge that there are material grounds for Professor Attfield’s tribute to the successful work of the firm. Our strides

have not been spasmodic, they have been steady. Each succeeding year has shown a substantial advance of about one hundred additional employees.

“Professor Attfield touched upon one feature of our work which is especially dear to me, that is my two Scientific Research Laboratories. We are sometimes asked to say more about what is being done there. Our products constantly indicate to the profession important results. But you are not likely to learn the details of all our doings in the outside world. There is much extremely important work going on in these research laboratories of the highest scientific and practical importance—work that is satisfactory to us as marking progress, and which promises us still greater advancement. The greatest work is sometimes done silently.”

Toast: “The Press and Visitors.”

The Chairman said: “We are honoured by the presence of distinguished visitors from the four quarters of the globe, and some of these are old and intimate personal friends of mine, who have strengthened me in my work by their counsel and their friendship. There are those of the Press here who have not failed when we have done anything that merited it to chronicle it, and this has been greatly to our advantage. We have only asked to be treated on our merits, and we have been treated justly by the Press. I will ask you to drink very heartily to the toast of The Press and the Visitors, connecting with the toast the name of Dr. Creasy, of the *British Medical Journal*.”

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[Photo of Gymnasium and Assembly Room]  
Interior of Gymnasium and Assembly Room

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Wellcome Club and Institute

Dr. Creasy replied: “It is a very great privilege to be the guest of a firm like this. It is a privilege, moreover, because this firm is one that has gained, and gained rightly, the highest repute in the world for good scientific work of every description. What the Press says is only what is due to the splendid work that is done by the firm.”

#### Entertainments

Shortly after luncheon an adjournment was made to the sports field for a pretty floral maypole dance by a group of lady employees. This was followed by athletic sports, most of the events of which were very keenly contested and watched with intense interest. Tea was then served in the great marquee.

In the evening there were well-contested aquatic sports, a graceful and artistic musical bicycle ride by lady employees, the cycles being elaborately decorated with flowers. The presentation of the prizes followed, and the day’s entertainment culminated in a magnificent display of fireworks and an illumination of the grounds. The twinkling of hundreds of fairy lights effectively arranged throughout the grounds, the glow of Chinese

lanterns everywhere among the trees, and the flood of coloured light from the fireworks, combined to form an entrancing spectacle, which was further enhanced by the quivering reflections in the river and lake. It formed a delightful setting to the final events of a day which was as enjoyable as it was unique in the history of chemical industry.

The absolute precision with which every item in the programme, from early morning until nearly midnight, was carried out, was evidence of a most complete and painstaking organisation, and was commented upon by scientific visitors as typical of the firm's remarkable scientific exactness in other directions.

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[Photo of Maypole Dance]

Maypole Dance by Lady Employees

Wellcome Club and Institute

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[Photo of Tug of War]

Tug of War

Inter-departmental—Wellcome Club and Institute

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[Photo of Dumb-Bell Exercises]

Dumb-Bell Exercises

By Members of the Gymnastic Club—Wellcome Club and Institute

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[Photo of Gymnastic Exercises]

Gymnastic Exercises

By Members of the Gymnastic Club—Wellcome Club and Institute

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[Photo of Quarter-Staff Display]

Quarter-Staff Display

By Members of the Gymnastic Club—Wellcome Club and Institute

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[Photo of Aquatic Sports]

Aquatic Sports

By Members of the Swimming Club—Wellcome Club and Institute

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[Photo of Quarter-Mile Handicap Race]

Quarter-Mile Handicap Race

By Members of the Athletic Club—Wellcome Club and Institute

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[Photo of Obstacle Race]

Obstacle Race  
By Members of the Athletic Club—Wellcome Club and Institute

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[Photo of Hockey Match]  
Hockey Match  
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[Photo of Boating on Lake]  
Boating on the Lake  
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[Photo of Winter Scene]  
Winter Scene  
In the Grounds of the Wellcome Club and Institute

NO PAGE NUMBER  
[Photo of Trophy—Engraved on the Trophy is the following: “Wholesale Chemists’ & Druggists’ *Cricket Championship* Inaugurated 1899]  
WHOLESALE CHEMISTS’ AND DRUGGISTS’ CRICKET CHAMPIONSHIP,  
LONDON  
Won by the Wellcome Cricket Club five years in succession.  
During these five years the Club’s record in the championship matches was—  
                    Won 31              Drawn 1              Lost 3  
At the end of the five years the Club withdrew from competition

NO PAGE NUMBER  
[Drawing of Temple]  
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# THE EVOLUTION OF JOURNALISM ETCETERA

## SOUVENIR OF THE INTERNATIONAL PRESS CONFERENCE LONDON, 1909

"Man's earliest chronicle was his footprint; it told of his coming, his going, and of his doings."

HENRY S. WELLCOME

WORD ON THIS PAGE:

The Evolution of Journalism  
ETCETERA

Souvenir of the  
INTERNATIONAL PRESS CONFERENCE  
LONDON, 1909 [ca. June]

"Man's earliest chronicle was his footprint; it told of his coming, his going, and of his doings." Henry S. Wellcome

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## INTRODUCTION

### SOME EPOCHS IN THE EVOLUTION OF JOURNALISM

The intense desire to convey to other and kindred beings the record of their impressions, the story of their triumphs, and even the vision of their thoughts, hopes and ideals, in a manner more permanent and far-reaching than by spoken word, has gripped the best and noblest of each successive generation of men, and urged them forward as though with a compelling hand. It has fashioned them into artists, sculptors, architects, poets and writers, as nature and occasion served, and each in his own way has added to the ever-growing volume of human tradition.

So typical is this characteristic of man that it serves to differentiate him from the lower animals, even in the early dawn of his evolutionary development.

Man alone, of all animals, possesses the graphic instinct, and that faculty he appears to have developed from a period which is lost in the mists of antiquity. It is in the exercise of this gift that we find the genesis of journalistic record, as it is clearly evident that the earliest form of recording and disseminating news was the illustrated chronicle which prehistoric man depicted on such primitive media as horns, bones, rocks, and the walls of caves.

The fragment of reindeer antler graved with the form of the mammoth was but the prototype of the illustrated chronicle of our later days.

The prehistoric tribal artist (forerunner of the war correspondent) delineated the sudden pouncing of the raider and the fierce combat of primitive men.

Step by step the pictograph, which was the origin of caligraphy, was supplemented by signs and symbols which

served to convey, not at first words, but ideas depicted in graphic scenes of life and action.

The early Babylonian chronicled the struggle between two kingdoms, in curious cuneiform characters on his tablet of clay, thousands of years before the Christian Era, while the antient Egyptian graved his hieroglyphic records on wood, papyrus and stone. The famous Rosetta stone, which solved to our scholars the mystery of the early Egyptian caligraphies, is an example of a State chronicle in the time of the Ptolemies.

The Biblical Chronicles tell us of the Creation, of the Deluge, and of warfare, power, glory and the rise and fall of nations, and finally of the Redeemer.

A century before the Christian Era, the Greek scribes reported the speeches of their orators on papyrus.

To China, that mysterious land of early culture, is assigned the earliest official printed periodical chronicle, which took the form of Imperial edicts, the first of which is said to have been issued more than two thousand years ago, and continues at the present day.

The early Hindus incised on the stone pillars of their antient temples, chronicles of their great kings and warriors, recording their glorious deeds and prowess in battle.

On the American continents many chronicles have been left indicating prehistoric human activities, and the rise and fall, during unknown ages before the Christian Era, of succeeding civilisations, the architectural remains of which may be compared with those of Nineveh and of Egypt.

The warlike Romans recorded the progress of their ever-victorious armies, as well as events of public interest, in the form of news-letters which were known as the *ACTA DIURNA*.

Pliny tells us that Julius Cæsar, during his consulship, ordered the Diurnal Acts of the senate and people to be published. The Roman reporters (called '*Actuarii*') were undoubtedly expert in their calling, as historians relate that they were



employed by Cicero to report verbatim the speech of Cato in the great debate on the Catiline Conspiracy.

The Anglo-Saxon chroniclers recorded on vellum for posterity the account of the invasion of Britain by the Romans, and later historians, like Froissart, crystallised in uncial or Gothic script the stirring events of mediæval times.

William of Malmesbury, Higden, and their fellow chroniclers recorded with fidelity the events of the picturesque period in which they lived.

To the great discovery in Europe of the art of printing, about 1450, which affected so profoundly civilisation throughout the world, journalism owes its greatest debt.

From Germany the pupils of Gutenberg soon spread far and wide, and about the year 1474 saw the first book printed in English by William Caxton. Wynken de Worde, worthy follower of his master, took up the torch, which has since shed its light to the farthestmost corners of the world.

The story of the printed newspaper or modern chronicle in London, which took its rise at the close of the sixteenth century, is told in the following pages, which show the evolution from its very modest beginnings to the great journals of world-wide circulation of to-day.

H. S. W.

---

"The Newspaper is the only instrument by which the same thought can be dropped into a thousand minds at the same moment."—DE TOCQUEVILLE.

# ABBREVIATED CHRONOLOGICAL TABLE SHOWING PROGRESS OF JOURNALISM

YEAR	PLACE	NAME	REMARKS
B.C.	Pekin	<i>Pekin Gazette</i>	... .. Earliest known printed Periodical
B.C.	Rome	<i>Acta Diurna</i>	... ..
A.D.	Frankfort-on-Main	<i>Frankfurter Journal</i>	... ..
1616	Antwerp	<i>Nieuwe Tijdinghen</i>	... ..
1622	London	<i>Weekly News</i>	... ..
1631	Paris	<i>Gazette (de France)</i>	... ..
1641	London	<i>Diurnall Occurrences</i>	First publication of Parliamentary proceedings
1642	Oxford	<i>Mercurius Aulicus</i>	... ..
1643	Stockholm	<i>Post (och Inrikes) Tidende</i>	... ..
1660	Edinburgh	<i>Mercurius Caledonius</i>	Ten numbers only published
1665	London	<i>London Gazette</i> (Temporarily at Oxford)	... ..
1672	Paris...	<i>Mercure (de France)</i>	Continued till 1853
1690	Worcester	<i>Berrow's Worcester Journal</i>	... ..
1695	London	<i>The Postboy</i>	First London Daily Paper
1699	Edinburgh	<i>Edinburgh Gazette</i>	... ..
1702	London	<i>Daily Courant</i>	First successful London Daily
1702	St. Petersburg	<i>St. Petersburg Wiedomosti</i>	... ..
1704	London	<i>Defoe's Review of the Affairs of State</i>	Continued till June, 1713
1704	Boston, Massachusetts	<i>Boston News-Letter</i>	Continued until loss of Boston by the British
1705	Edinburgh	<i>Edinburgh Courant</i>	... ..
1711	Dublin	<i>Dublin Gazette</i>	... ..
1712	Hamburg	<i>Hamburg Correspondent</i>	... ..
1716	Rome	<i>Diario di Roma</i>	Continued for nearly 90 years
1726(?)	Madrid	<i>Gaceta de Madrid</i>	Continued until about 1850
1763	Dublin	<i>Freeman's Journal</i>	Earliest Irish Daily Paper
1772	London	<i>The Morning Post</i>	... ..
1782	Glasgow	<i>Glasgow Herald</i>	... ..
1785	London	<i>The Times</i>	Known until 1788 as Universal Daily Register
1789	Paris ..	<i>Moniteur Universel</i>	... ..
1789	Paris...	<i>Journal des Débats</i>	... ..
1792	London	<i>The Observer</i>	... ..
1792	London	<i>The Courier</i>	Long the leading London Newspaper
1794	London	<i>Morning Advertiser</i>	... ..
1798	Leipsic	<i>Allgemeine Zeitung</i>	... ..
1802	London	<i>Globe</i>	... ..
1817	Edinburgh	<i>The Scotsman</i>	Daily from 1855
1827	London	<i>The Standard</i>	Morning Paper from 1857
1841	London	<i>Punch</i>	... ..
1842	London	<i>Illustrated London News</i>	... ..



ABBREVIATED CHRONOLOGICAL TABLE  
SHOWING PROGRESS OF JOURNALISM—(contd.)

YEAR	PLACE	NAME	REMARKS
1842	London	... <i>Lloyd's Weekly News</i> ...	...
1842	Madrid	... <i>Heraldo</i> ...	Chief Spanish Journal for many years
1846	London	... <i>The Daily News</i> ...	...
1847	Turin	... <i>Il Risorgimento</i> ...	Edited by Cavour
1847	Florence	... <i>L'Opinione</i> ...	...
1847	Glasgow	... <i>North British Daily Mail</i> ...	...
1849	Berlin	... <i>Volkszeitung</i> ...	Reputed to have the largest circulation in Germany
1855	London	... <i>The Daily Telegraph</i> ...	...
1859	London	... <i>Sporting Life</i> ...	...
1865	London	... <i>Sportsman</i> ...	...
1865	London	... <i>Pall Mall Gazette</i> ...	...
1869	London	... <i>The Daily Chronicle</i> ...	As Clerkenwell News, 1855
1869	London	... <i>Graphic</i> (Weekly) ...	...

SOME RECENT LONDON DAILIES

YEAR	NAME	REMARKS
1881	<i>Evening News</i> ...	...
1884	<i>Financial News</i> ...	...
1888	<i>Financial Times</i> ...	...
1888	<i>The Star</i> ...	Evening Paper
1889	<i>Financial Truth</i> ...	...
1890	<i>The Daily Graphic</i> ...	Illustrated
1892	<i>Morning Leader</i> ...	...
1893	<i>Westminster Gazette</i> ...	...
1896	<i>The Daily Mail</i> ...	...
1900	<i>The Daily Express</i> ...	...
1900	<i>Financier &amp; Bullionist</i>	As <i>Financier</i> 1870
1903	<i>Daily Mirror</i> ...	Illustrated
1905	( <i>Evening Standard</i> (1827) and <i>St. James Gazette</i> (1880))	Incorporated 1905
1909	<i>Daily Sketch</i> ...	Illustrated



[Go Back to INDEX \(pdf p. 10\)](#)

SOME  
ANTIENT CHRONICLES



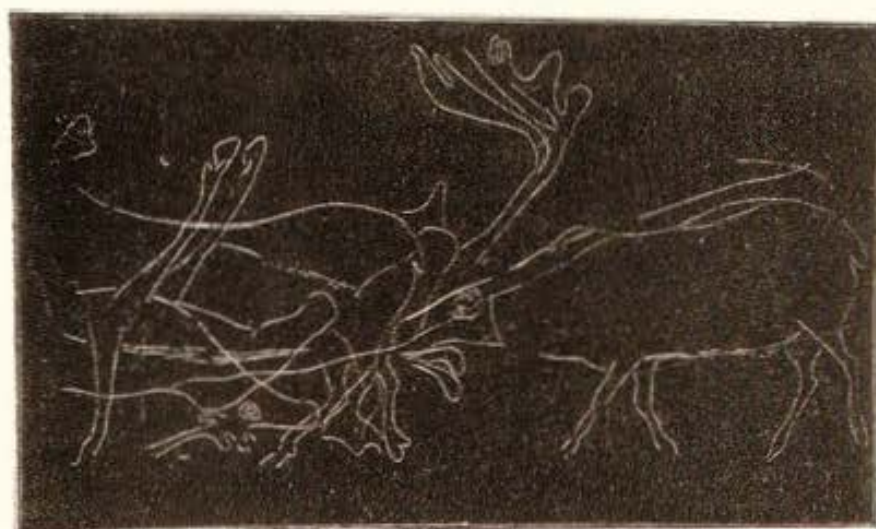


Pictographic Chronicle of the Reindeer Period. (Earliest known representation of a man.) Serpents and horses' heads are also depicted. From the Grotto of Les Eysies. Europe.



PORTRAIT OF MAMMOTH

Drawn with a flint on a piece of mammoth's ivory. from cave of La Madeleine, Dordogne, France



Prehistoric Pictographic Chronicle of a fight between two reindeer, graved upon a schistose rock. Europe.

PREHISTORIC CHRONICLES

ANTIEN BABYLONIAN NEWS CHRONICLE

A Babylonian Clay Tablet written in Cuneiform characters of E-an-na-du,  
Governor of Shirpurla (Lagash), 4500 B.C.

It contains an interesting account of a struggle between two city kingdoms  
which occurred about 4500 B.C.

*Translation—*

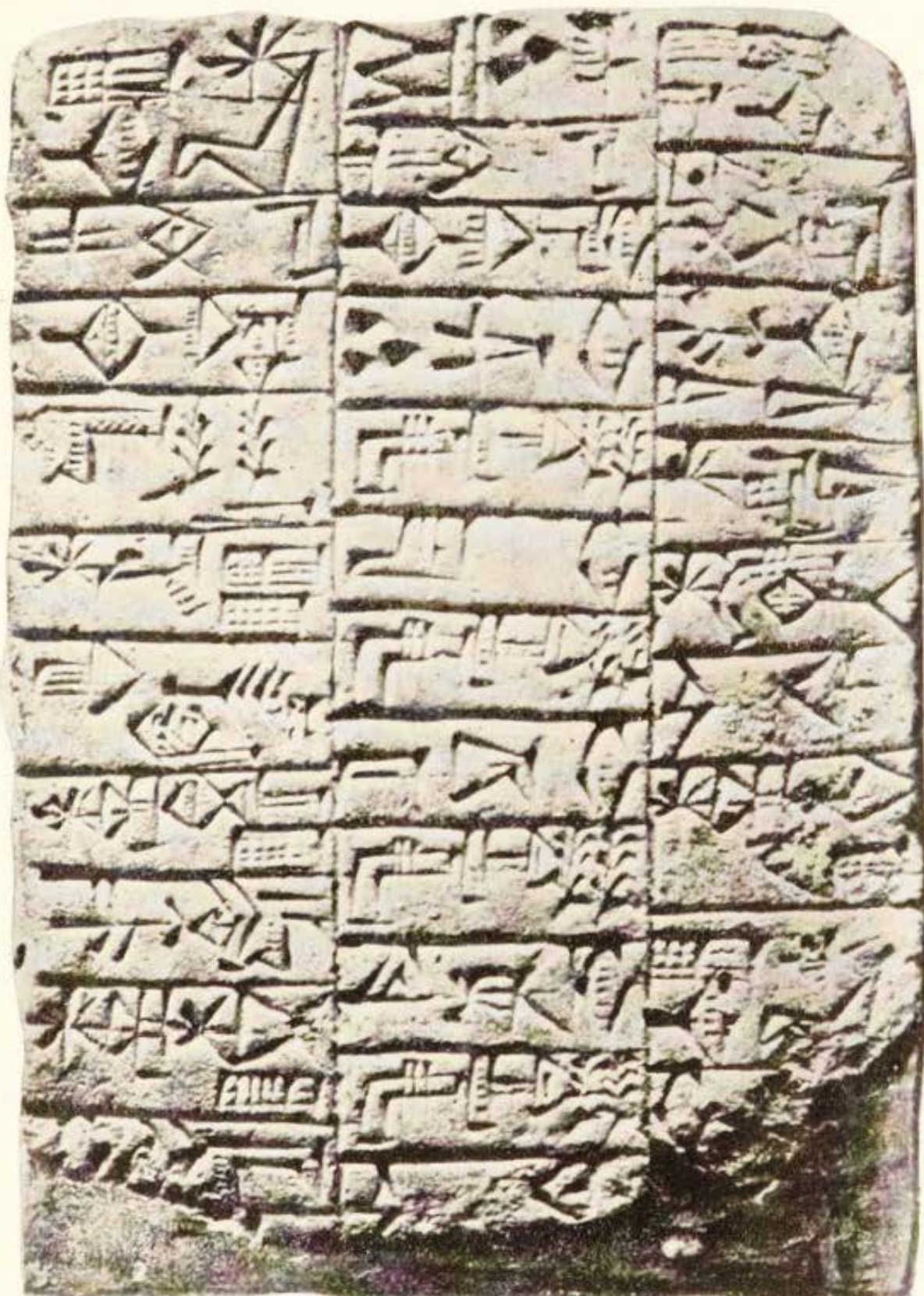
(1) "E an-na-du, Viceroy of Shirpurla, endowed with power by En-ki (Ea)  
and nourished with the holy milk of the Lady of the Mountain, the attendant  
of Uma, priestess of Euch.

(2) "Son of A Kurgah, Viceroy of Shirpurla, the land of Ara, he conquered  
the land of—he conquered—Gisukh he conquered.

(3) "The city of Ur he ruled and to Ningivsu his word he gave."

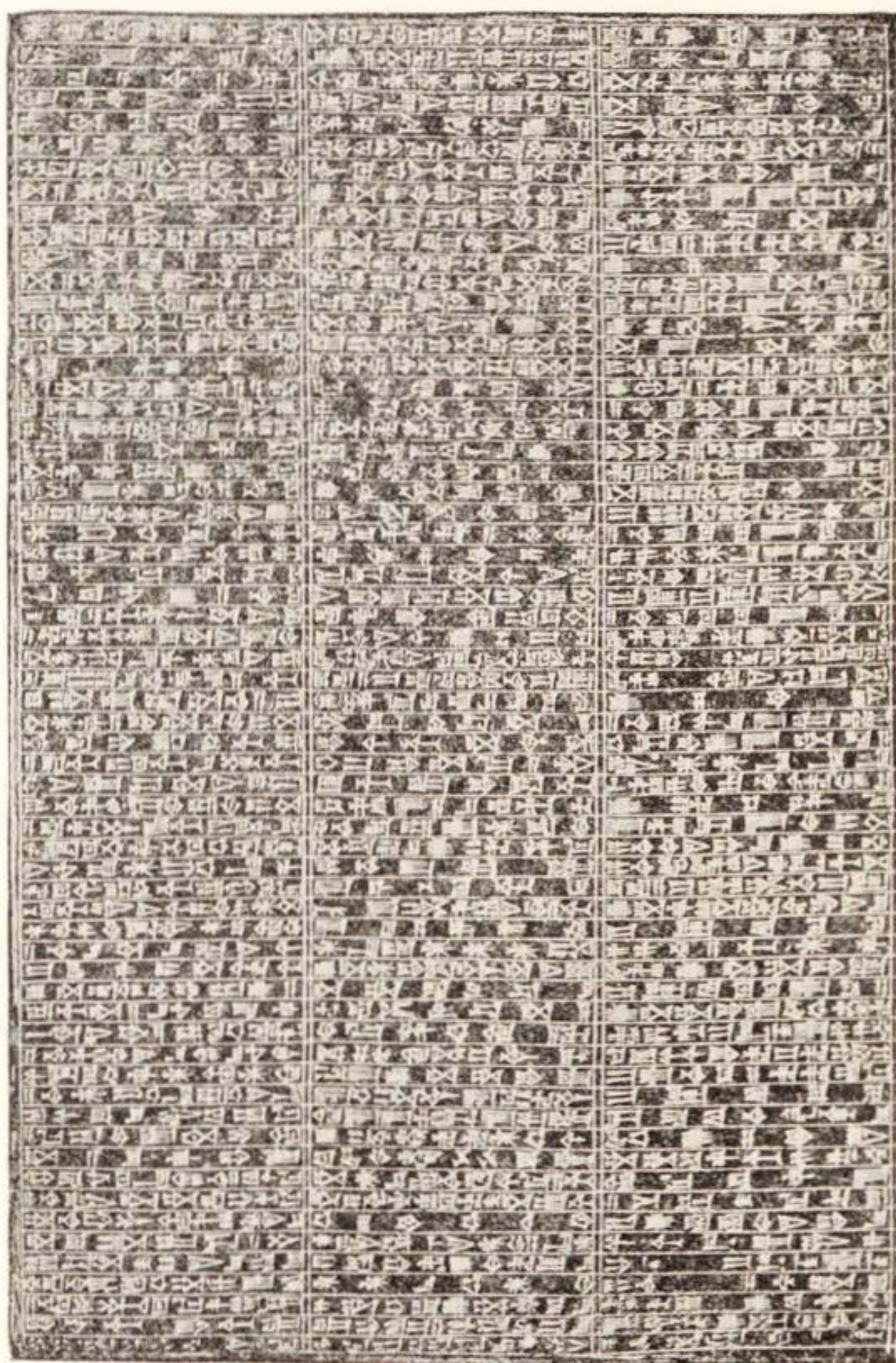
The remainder of the inscription relates to some buildings erected by the  
king.





CUNEIFORM NEWS CHRONICLE OF ANTIENT BABYLON  
(Translation on page 14)

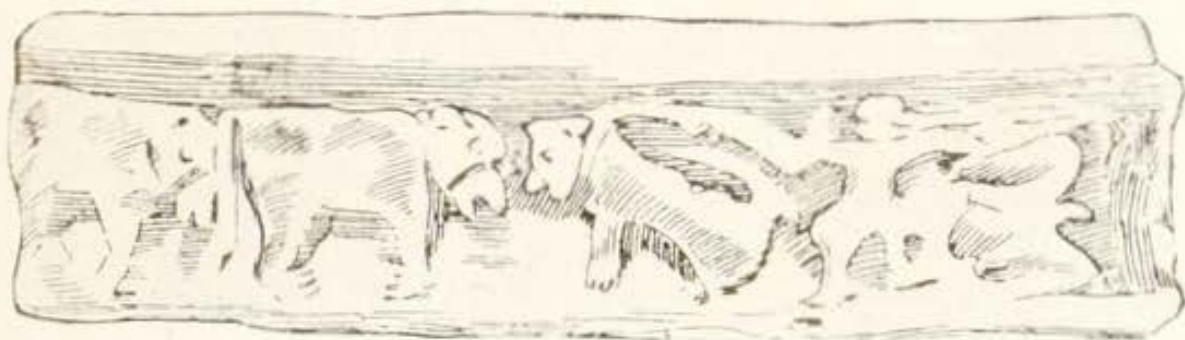




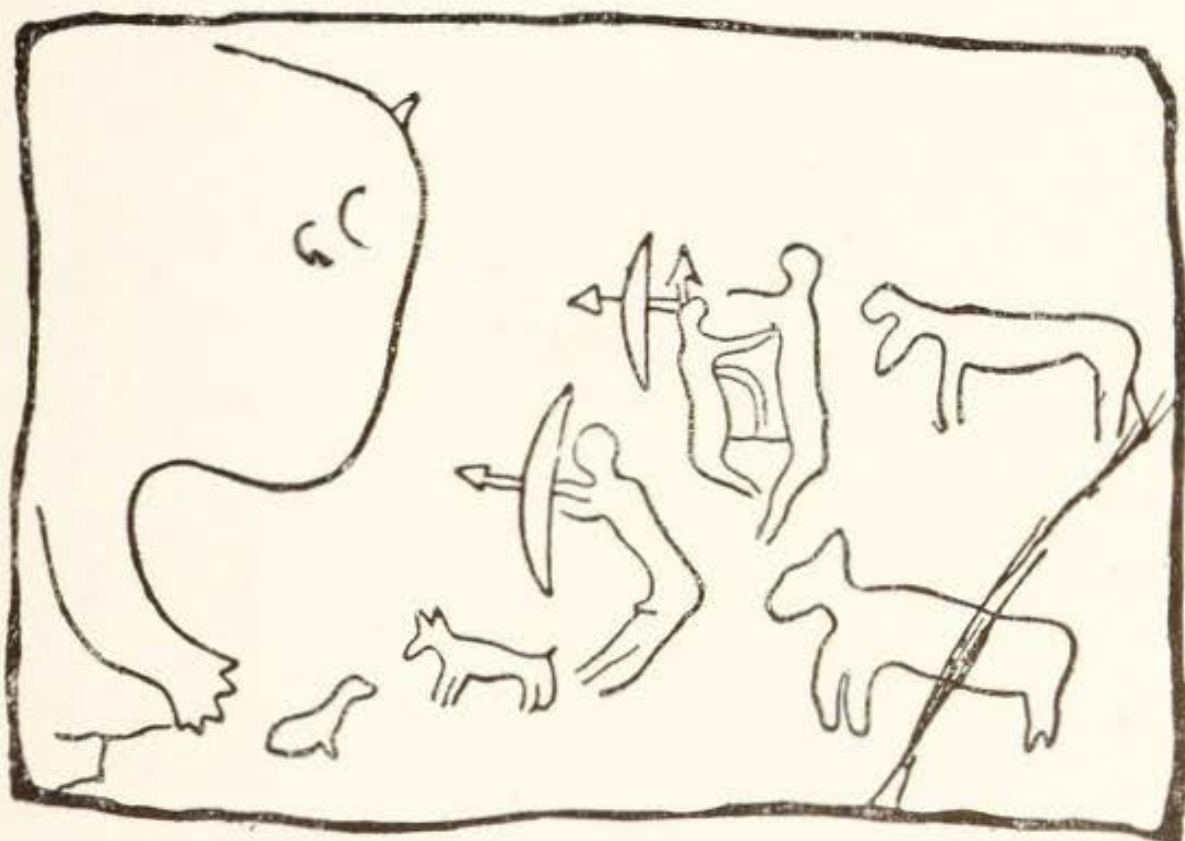
ANTIEN'T BABYLONIAN CHRONICLE

Account of the building of the walls and temples of Babylon by Nebuchadnezzar II., about 604-562 B.C. inscribed in archaic Babylonian characters upon a black basalt slab



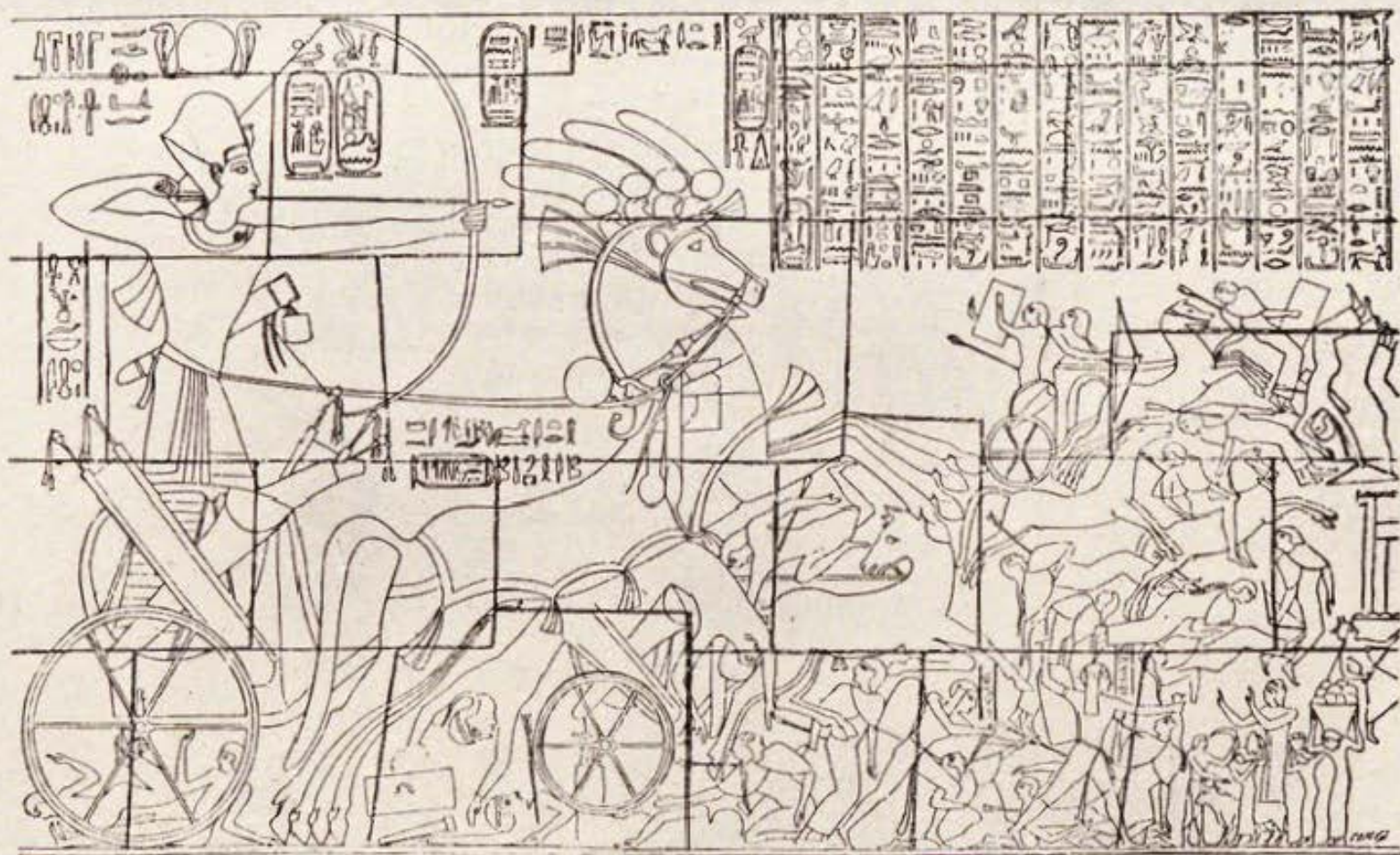


Prehistoric Pictographic Rock Chronicle. South Africa.



Prehistoric Rock Chronicle. North Africa.

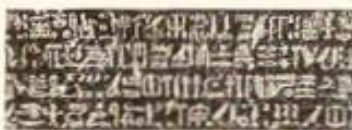
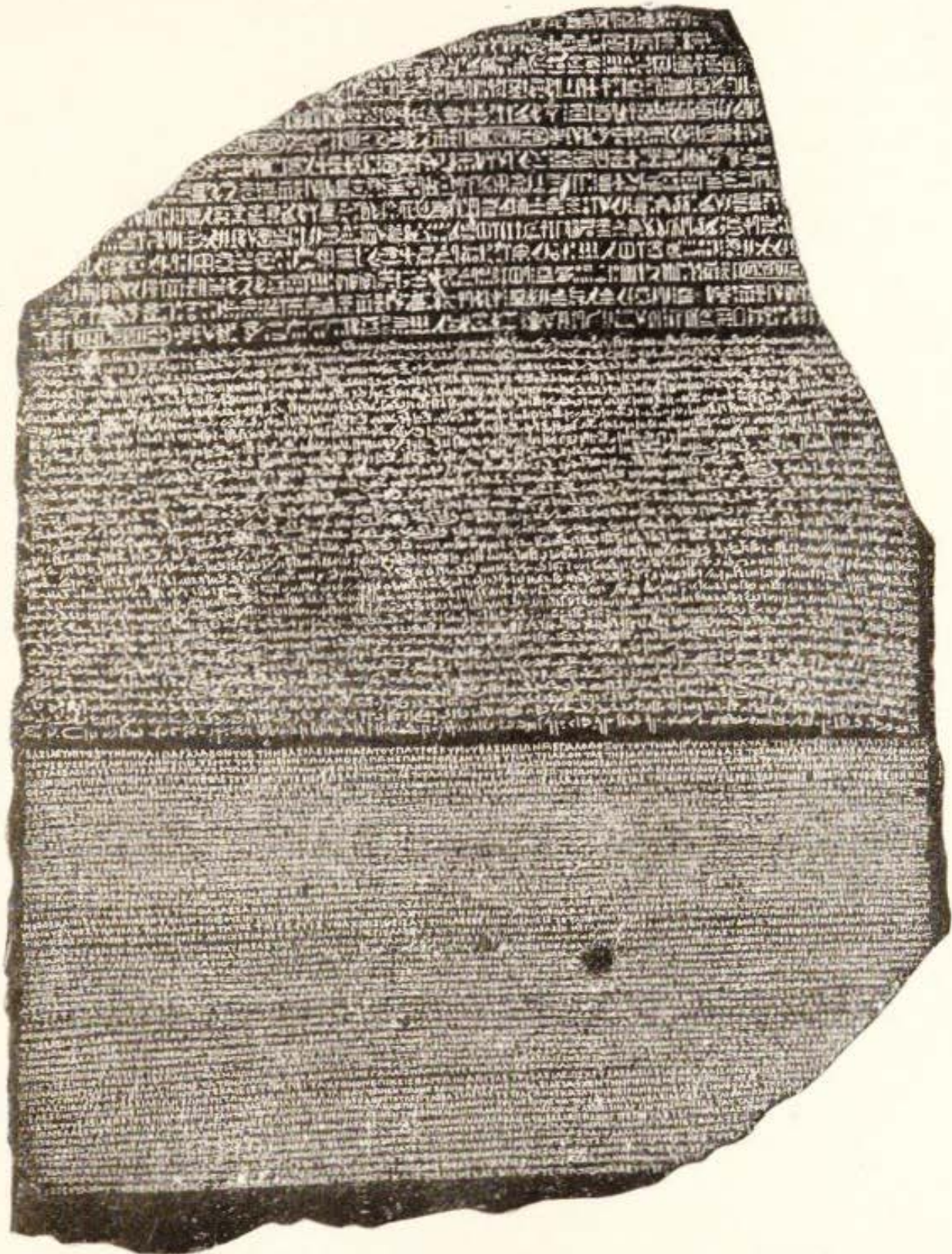
PREHISTORIC AFRICAN CHRONICLES



ANTIENr EGYPTIAN HIEROGLYPHIC AND PICTORIAL CHRONICLE

Rameses II. leading his warriors in battle, 1322 B.C.

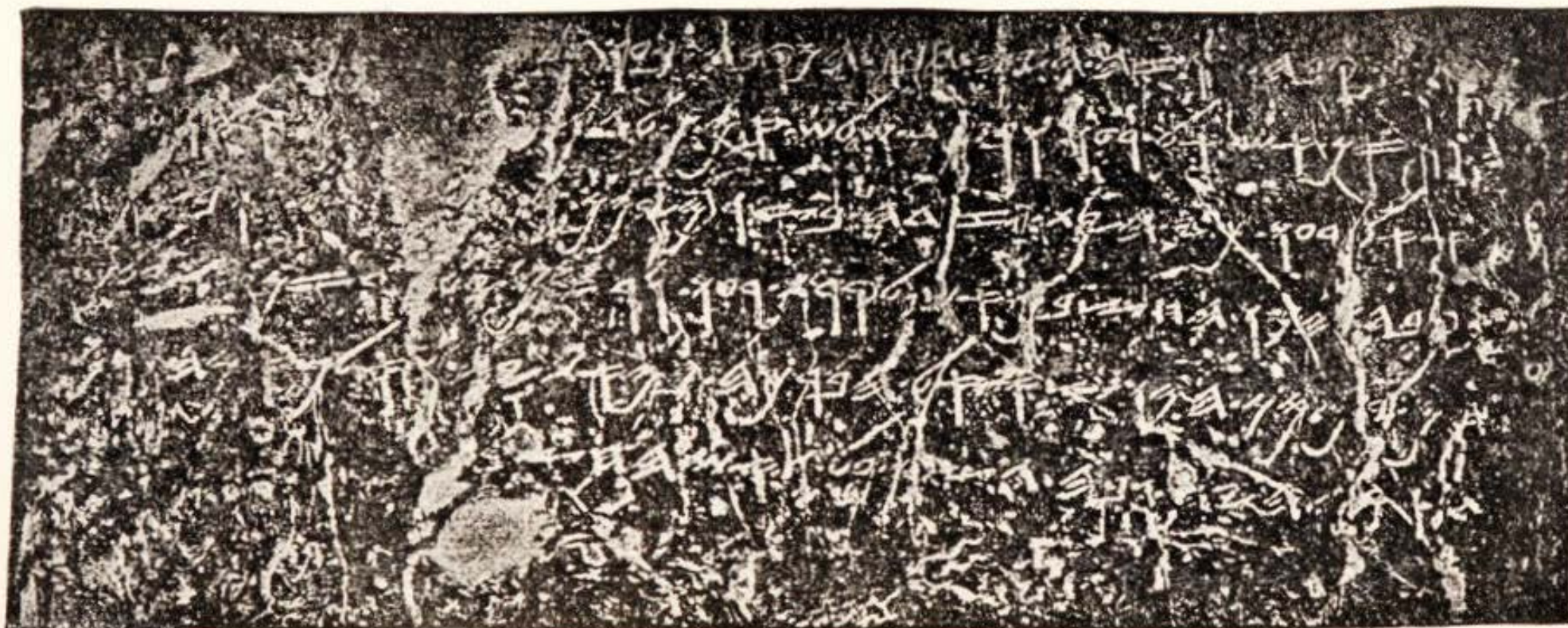




### ANTIEN EGYPTIAN CHRONICLE

In the time of the Ptolemies, State documents were promulgated by inscribing them on shaped stones, which were set up in public places. The famous Rosetta stone here depicted was a publication record of this kind, and was set up in the ninth year of the reign of Ptolemy Epiphanes, or Ptolemy V., 205 B.C. It is written in Hieroglyphics, Demotic and Greek; a specimen of each of these forms of caligraphy is here represented





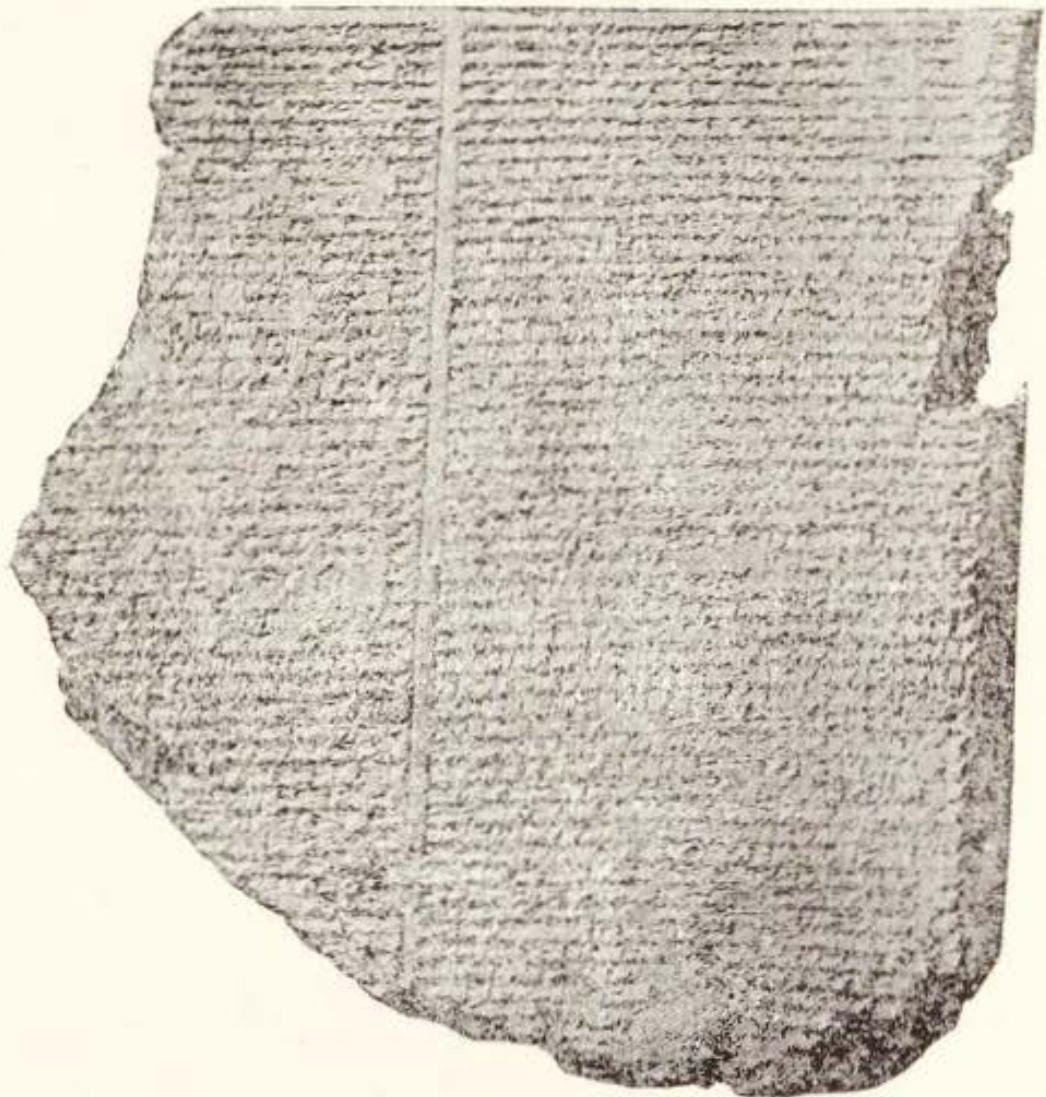
ANTIEN T PHŒNICIAN CHRONICLE

This inscription in the Phœnician character was cut on the wall of the conduit of the Pool of Siloam about 700 B.C.





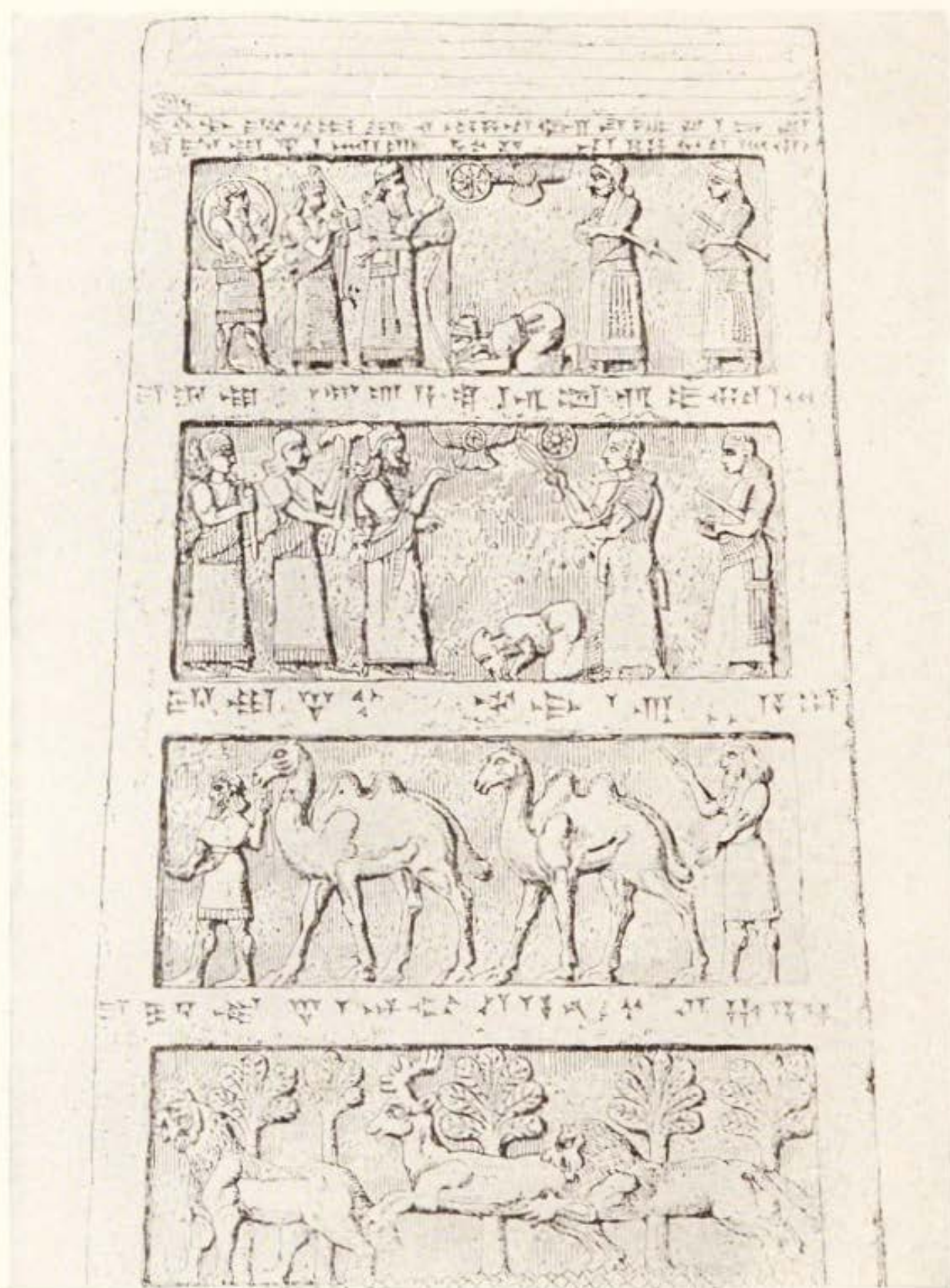
Assyrian account  
of the Creation



Assyrian  
account of  
the Deluge

ANTIEN ASSYRIAN CHRONICLES

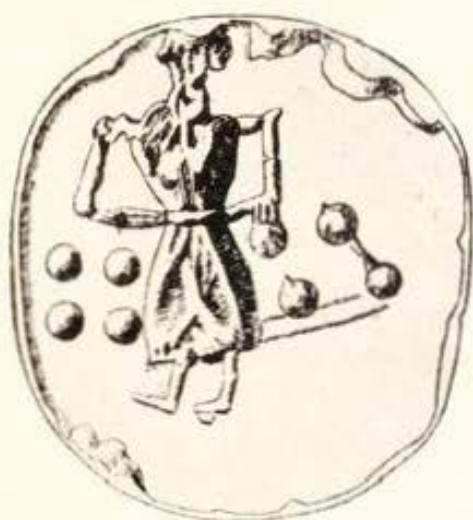
These two clay tablets, giving an account of the Creation and the Deluge, are from the library of Assur-bani-pal, King of Assyria about 668-626 B.C., at Nineveh



ANTIEN ASSYRIAN PICTORIAL CHRONICLE

A carving in basalt depicting an antient Assyrian King receiving homage and tribute from five conquered nations





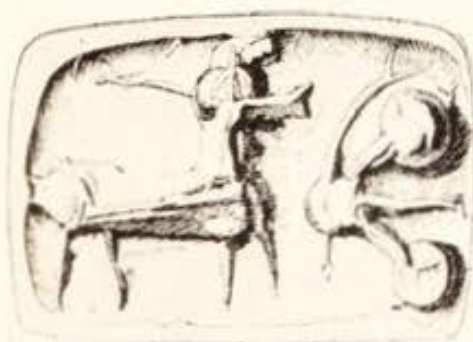
1



2



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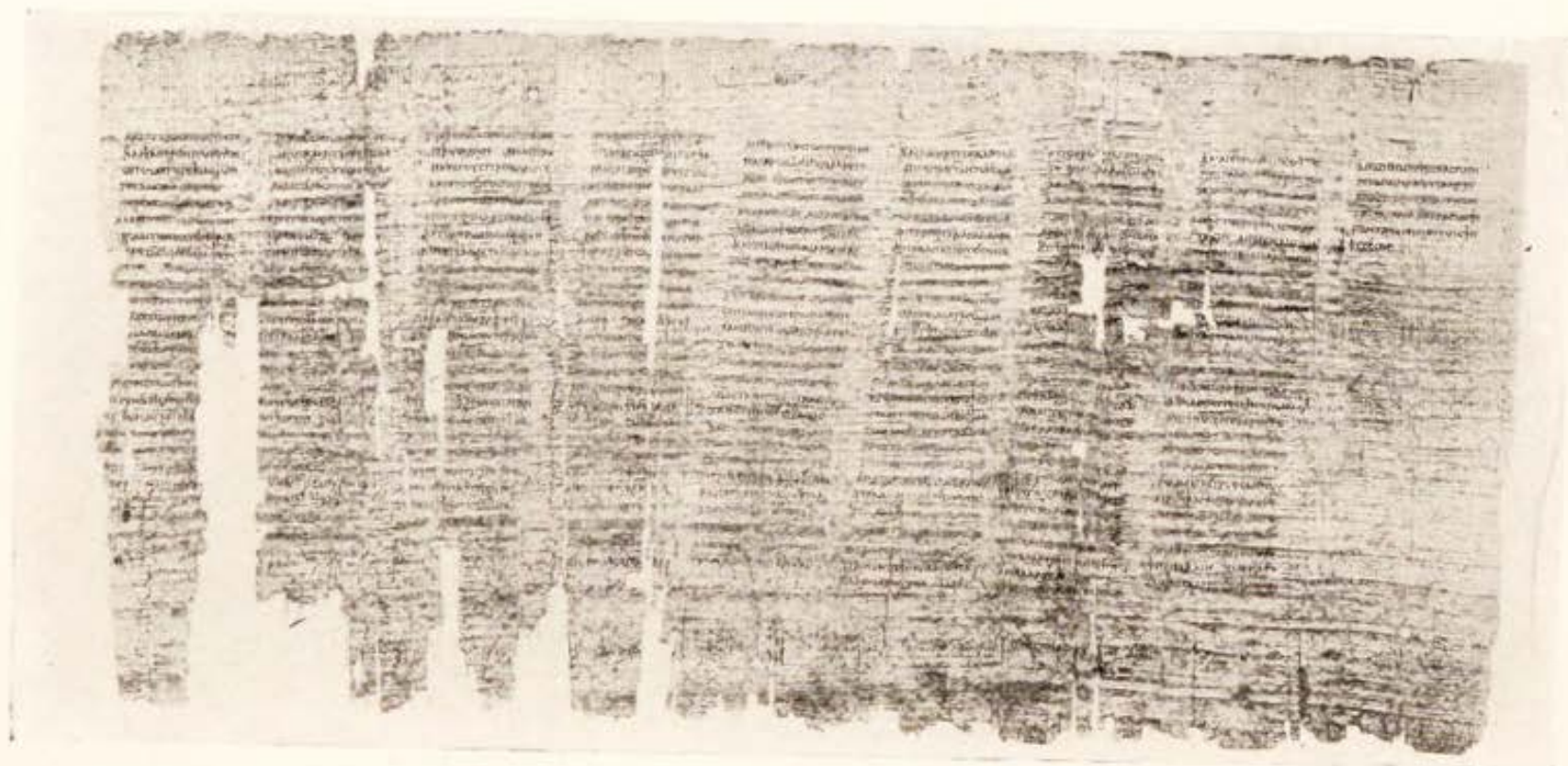
4



5

# PRIMITIVE GREEK PICTORIAL CHRONICLES

Some of the earliest examples of Greek pictographic symbols depicting: (1) An archer in the act of shooting. (2) A scene with goat. (3) A pugilistic encounter. (4) A scene with centaur. (5) Three early Greek warriors with spears



# ANTIENT GREEK CHRONICLE

Written on papyrus about 100 B.C., reporting Hyperides' Oration against Philippides



ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 उवाच ॥ कुरुक्षेत्रे संवत्सरे ॥  
 द्रुपद उवाच ॥ १ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ २ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ३ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ४ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ५ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ६ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ७ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ८ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ९ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १० ॥  
 ॐ नमो भगवते वासुदेवाय ॥ ११ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १२ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १३ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १४ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १५ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १६ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १७ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १८ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ १९ ॥  
 ॐ नमो भगवते वासुदेवाय ॥ २० ॥

ANTIEN HINDU CHRONICLE  
about 240 B.C.

Giving an account of King Vrishadēra, and relating his deeds, his prowess in battle, etc.

4TH OF THE KALENDS OF APRIL IN  
THE YEAR 585, AFTER THE BUILDING  
OF ROME.

IT THUNDERED, AND AN OAK WAS STRUCK  
WITH LIGHTNING IN THAT PART OF MOUNT  
PALATINE CALLED SUMMA VELIA, EARLY IN  
THE AFTERNOON.

A FRAY HAPPENED IN A TAVERN AT THE  
LOWER END OF BANKER STREET, IN WHICH  
THE KEEPER OF THE HOG-IN-ARMOUR TAVERN  
WAS DANGEROUSLY WOUNDED.

TERTINIUS THE ÆDILE, FINED THE BUTCHERS  
FOR SELLING MEAT WHICH HAD NOT BEEN  
INSPECTED BY THE OVERSEERS OF THE  
MARKETS.

THE FINE IS TO BE EMPLOYED IN BUILDING  
A CHAPEL TO THE TEMPLE OF THE GODDESS  
TELLUS.

ANTIEN ROMAN NEWS LETTER

Translation from a Roman ACTA DIURNA, or the daily report of public  
occurrences, which was issued by authority, 168 B C.



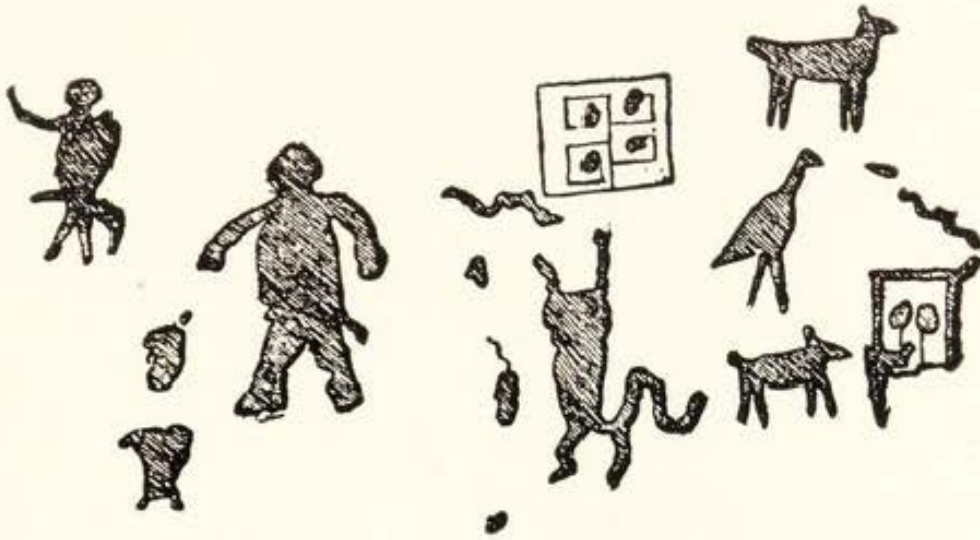
PRIMITIVE VIKING CHRONICLE

▲ Viking pictograph traced on rock representing one of their foreign raids.  
Dating from an unknown period before the Christian Era

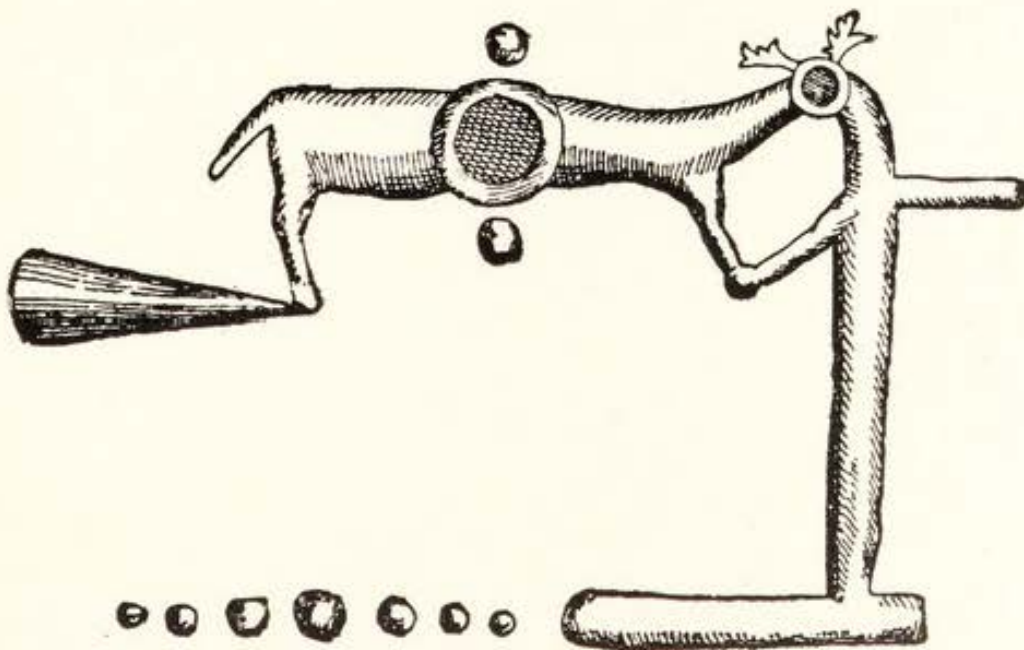




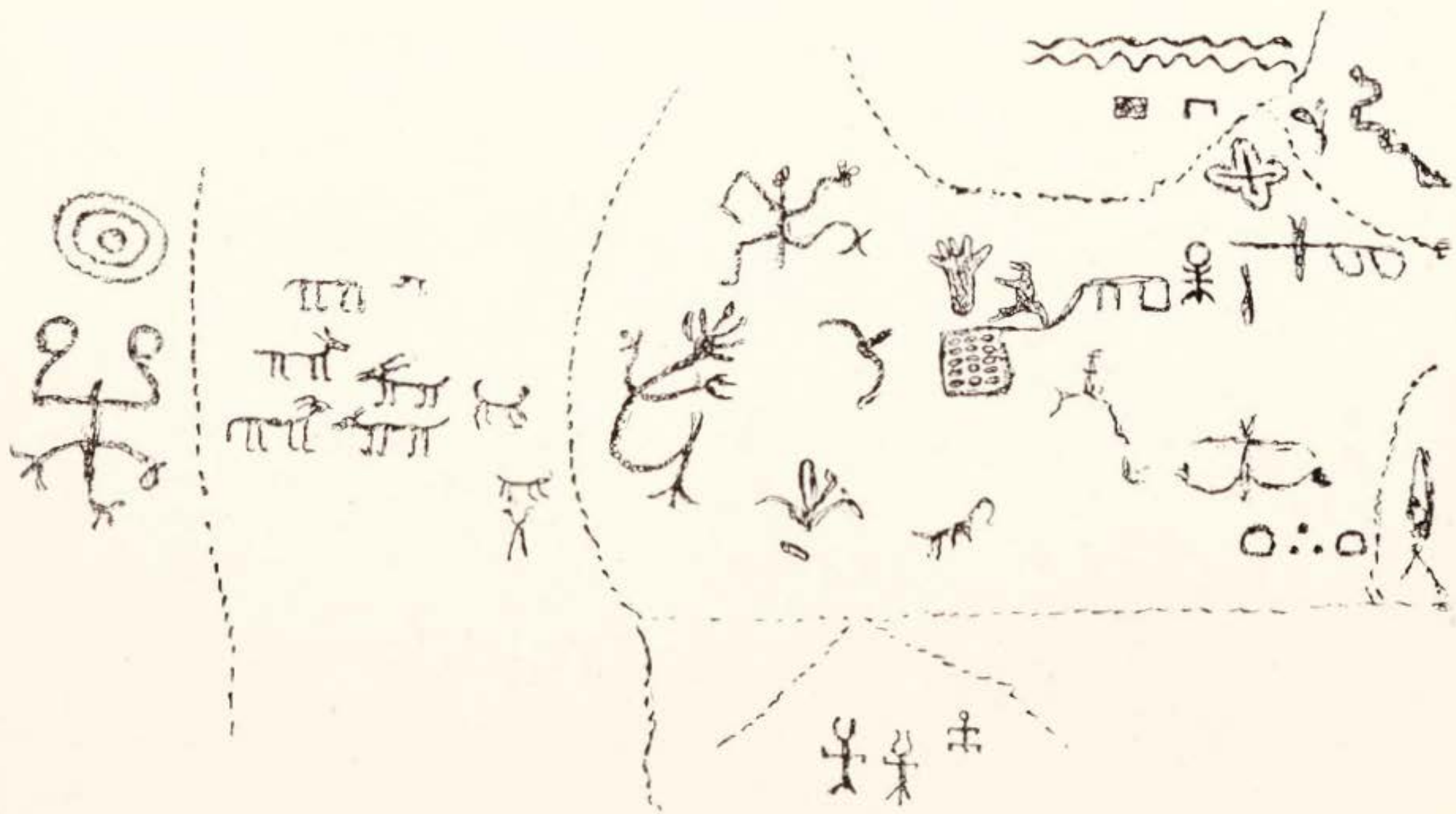
PRIMITIVE PICTOGRAPHIC CHRONICLE. AUSTRALIA



PREHISTORIC PICTOGRAPHIC ROCK CHRONICLE. UTAH.  
Incised on very hard blue granite

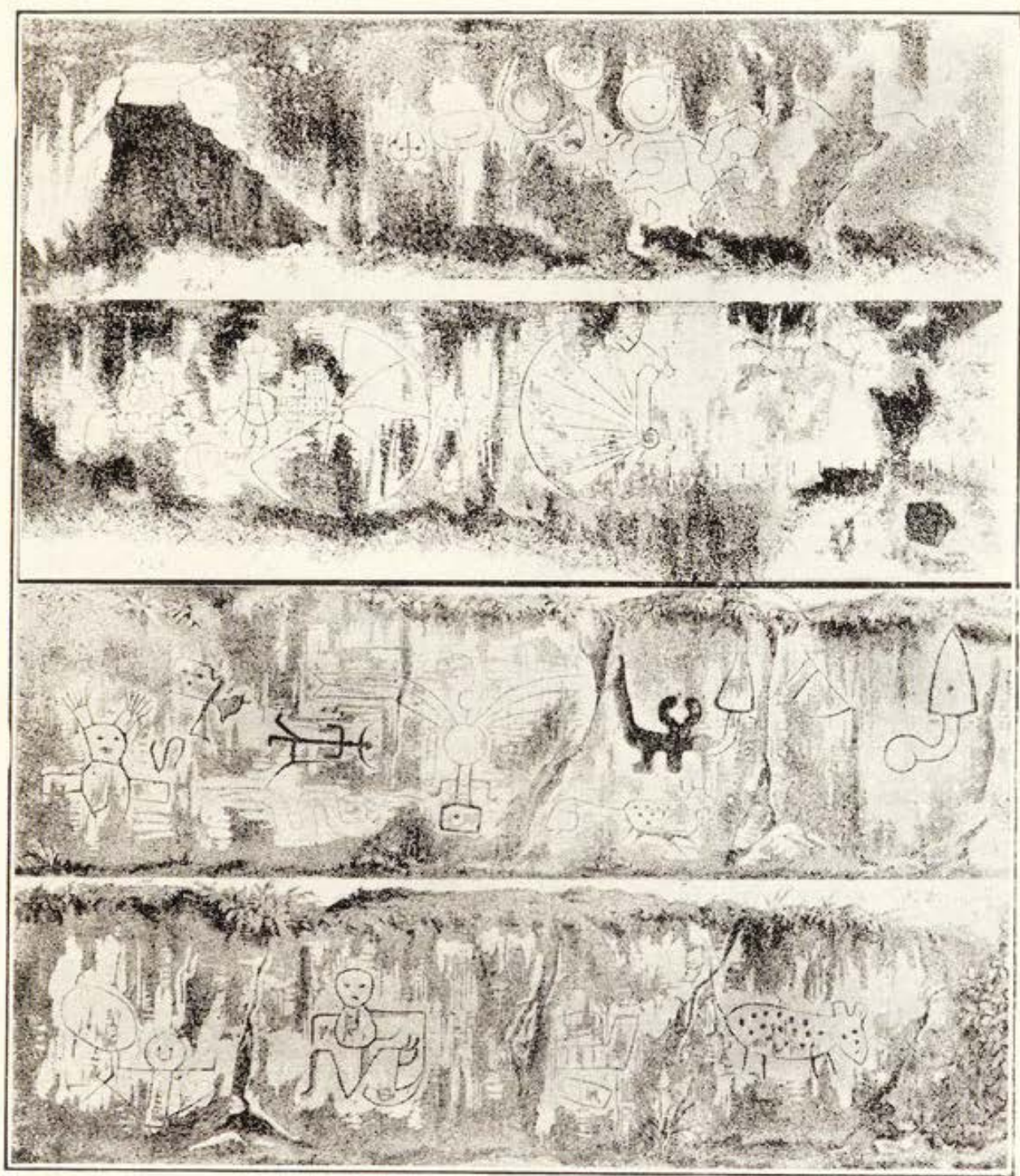


PREHISTORIC PICTORIAL EARTH CHRONICLE. WISCONSIN.  
In the form of mounds, depicting a treaty of alliance between two tribes

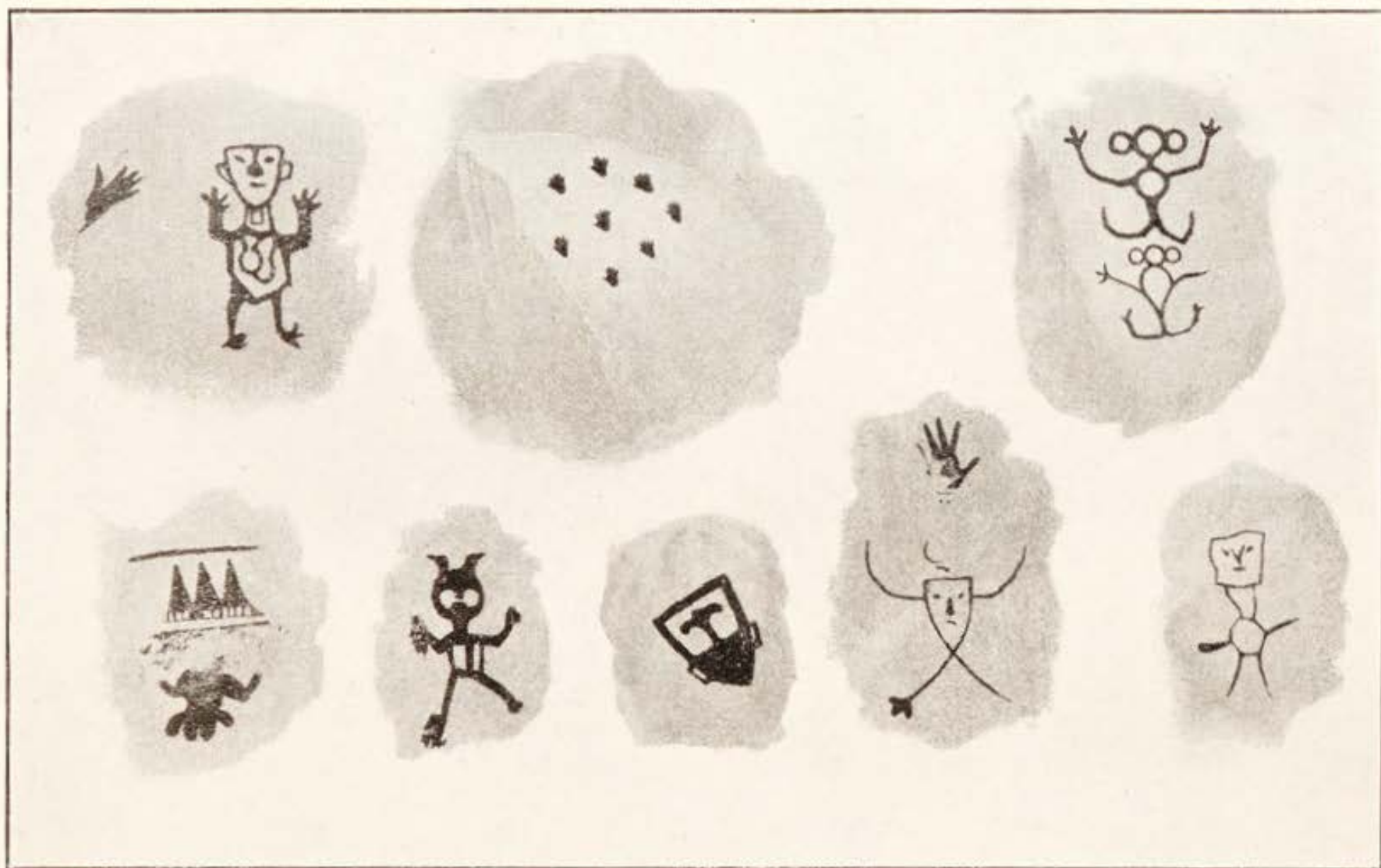


PREHISTORIC ROCK CHRONICLES, NEW MEXICO



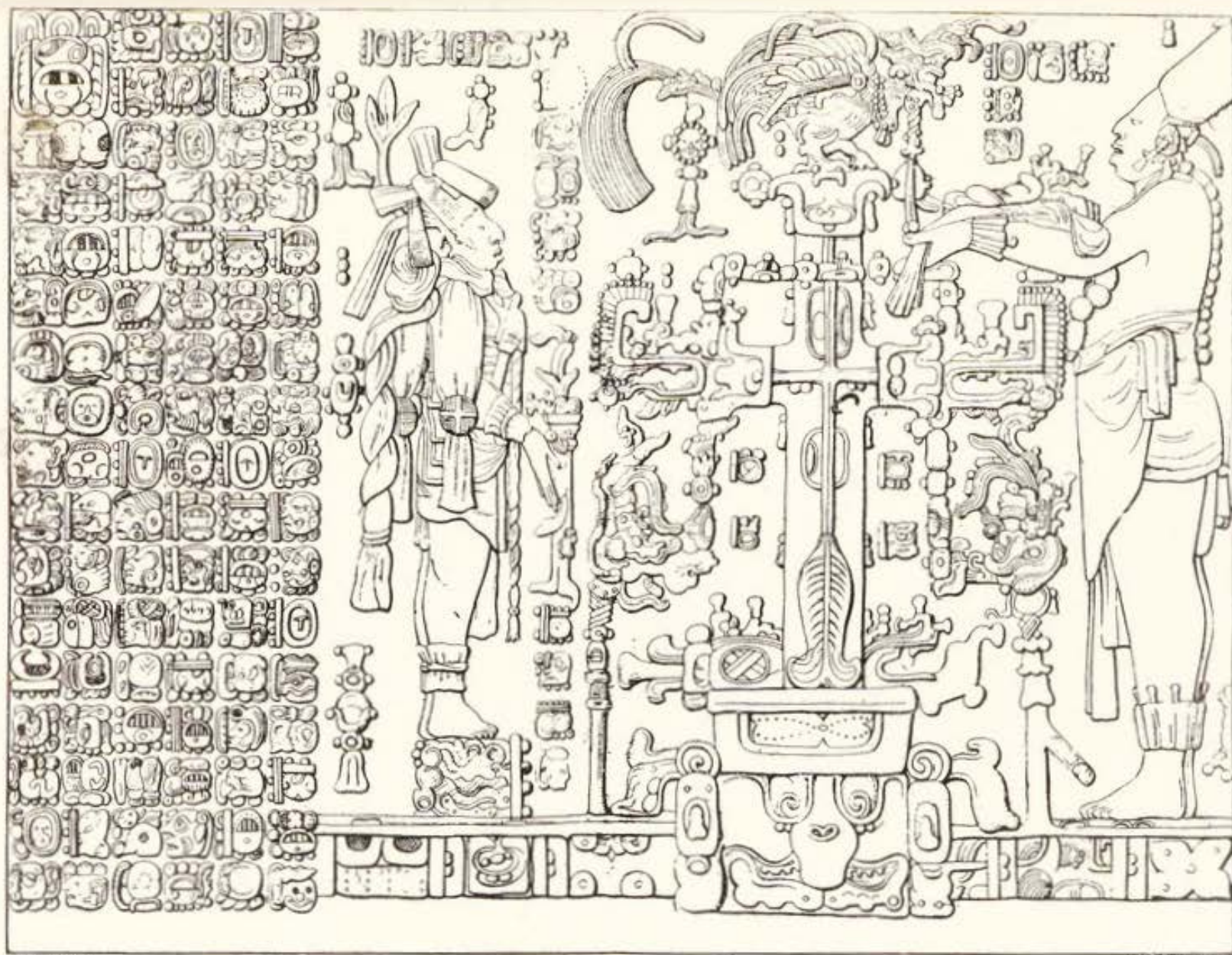


PREHISTORIC PICTOGRAPHIC ROCK CHRONICLES  
OF MASAYA. CENTRAL AMERICA



PREHISTORIC PICTOGRAPHIC PAINTED ROCK CHRONICLES  
OF MANAGUA, CENTRAL AMERICA

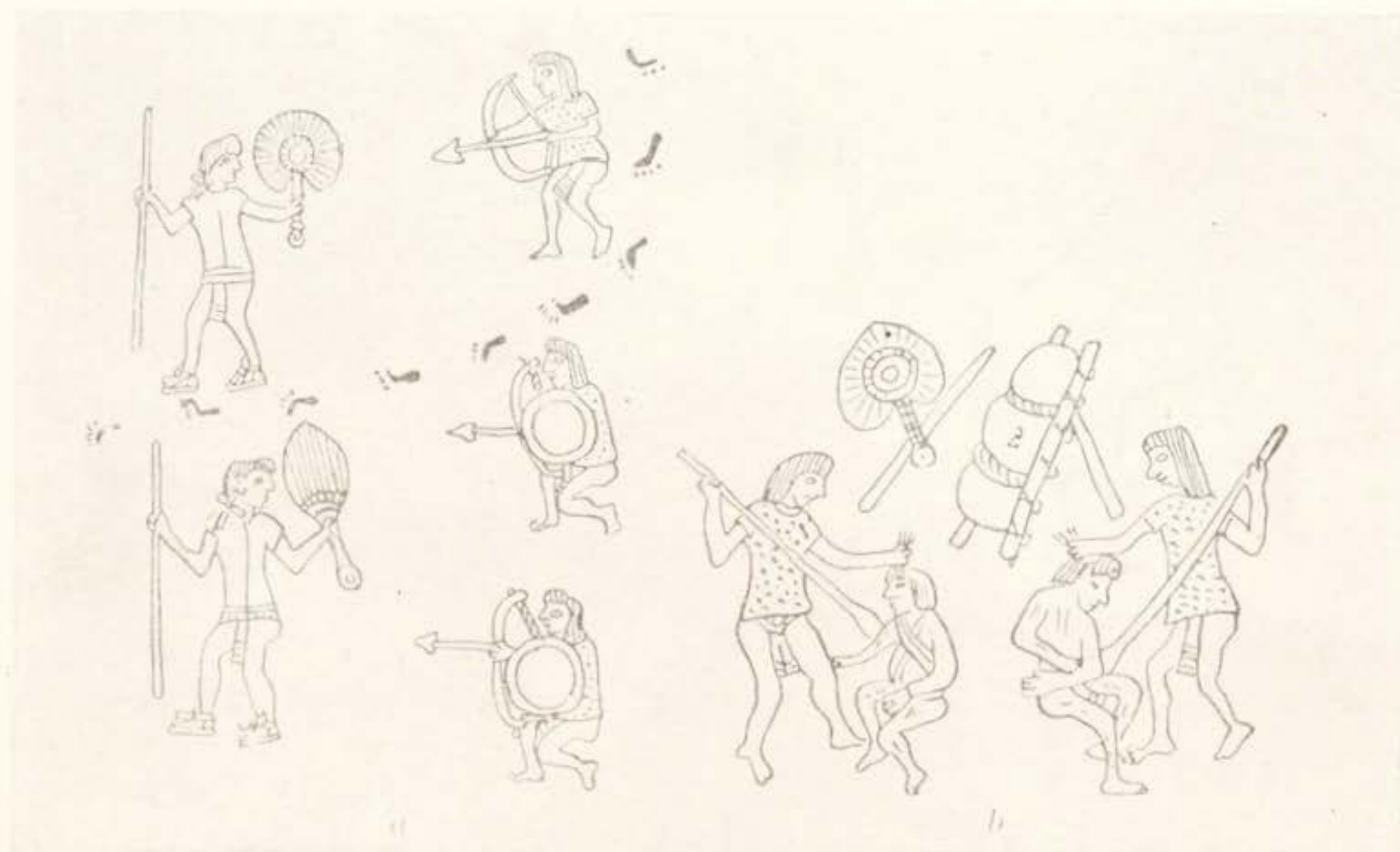




F. Galtier del.

KLB 5. 2. p. 194

ANTIEN TOLTEC HIEROGLYPHIC AND PICTORIAL CHRONICLE.  
YUCATAN



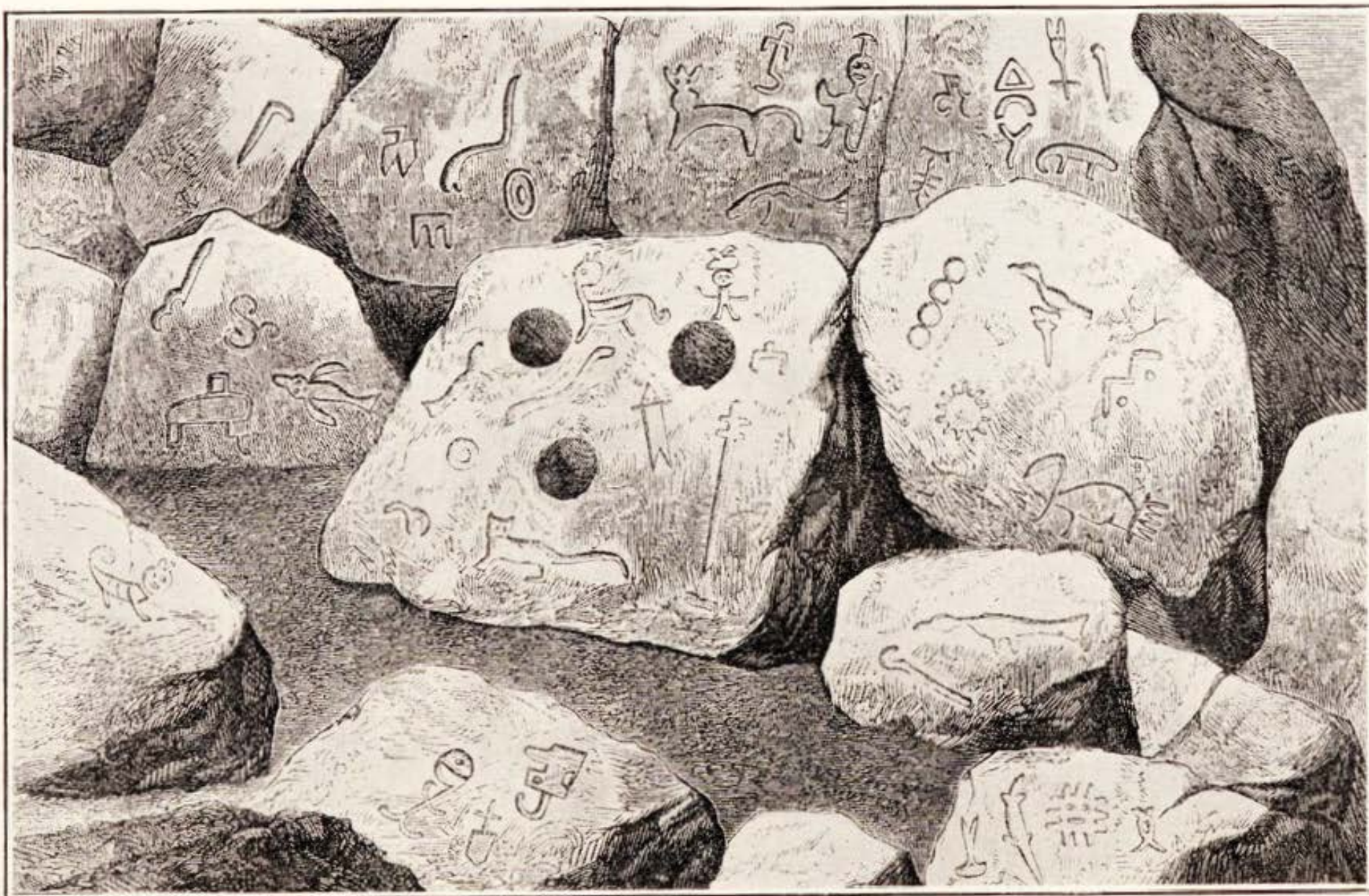
ANTIEN MEXICAN PICTORIAL CHRONICLE  
Representing a company of traders and messengers being attacked on a journey





PREHISTORIC PICTOGRAPHIC ROCK CHRONICLE  
SOUTH AMERICA





JEJETEPEQUE PREHISTORIC ROCK CHRONICLES  
SOUTH AMERICA





ANTIEN CHIMU MODELLED CHRONICLE  
Representing a Chimú Royal Warrior with his national weapon. Before  
the Christian Era. From the Hewett-Myring Collection.



- (1 and 2) Warriors in Combat  
 (3 and 4) Scenes of the Chase  
 (5) A Chimu Mercury  
 (6) Representation of an unidentified and extinct beast of burden which was ridden by lying flat across its broad level back

#### ANTIEN CHIMU PICTORIAL CHRONICLES

Dating from an unknown period before the Christian Era. From the unique collection of Mr. Hewett-Myring, now being offered to the British Museum. This collection may be acquired by the nation if some public spirited man of wealth will render this possible



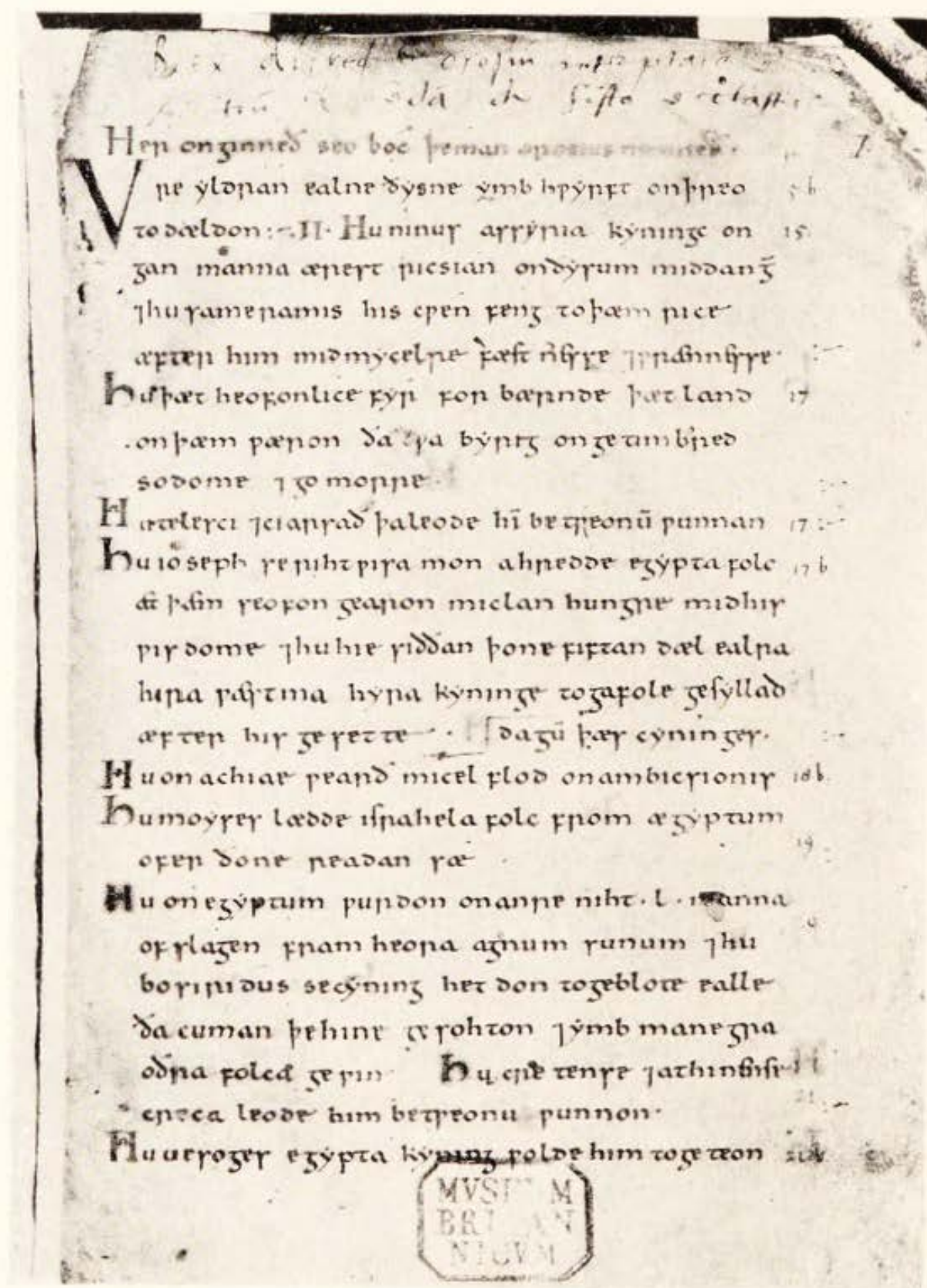


A Victorious General being honoured by his King on his return from a Campaign



Depicting a Military Victory over a Naval Enemy

ANTIEN T PERUVIAN PICTORIAL CHRONICLES



ANGLO-SAXON MANUSCRIPT CHRONICLE

Written about the year 1066, giving an account of the invasion of Britain by Julius Caesar



[illegible]

Howe the duke of Berrye  
sent letters to the duke of  
Laurasles to Salon: and  
howe the duke sent the topi  
of the same letters into  
foye & into Manas: to the  
intent to have them pub:  
lished in spaigne: & howe  
the duke of bieraigne dema:  
unded reuynise in all his  
businessse. &c. &c.

[illegible]



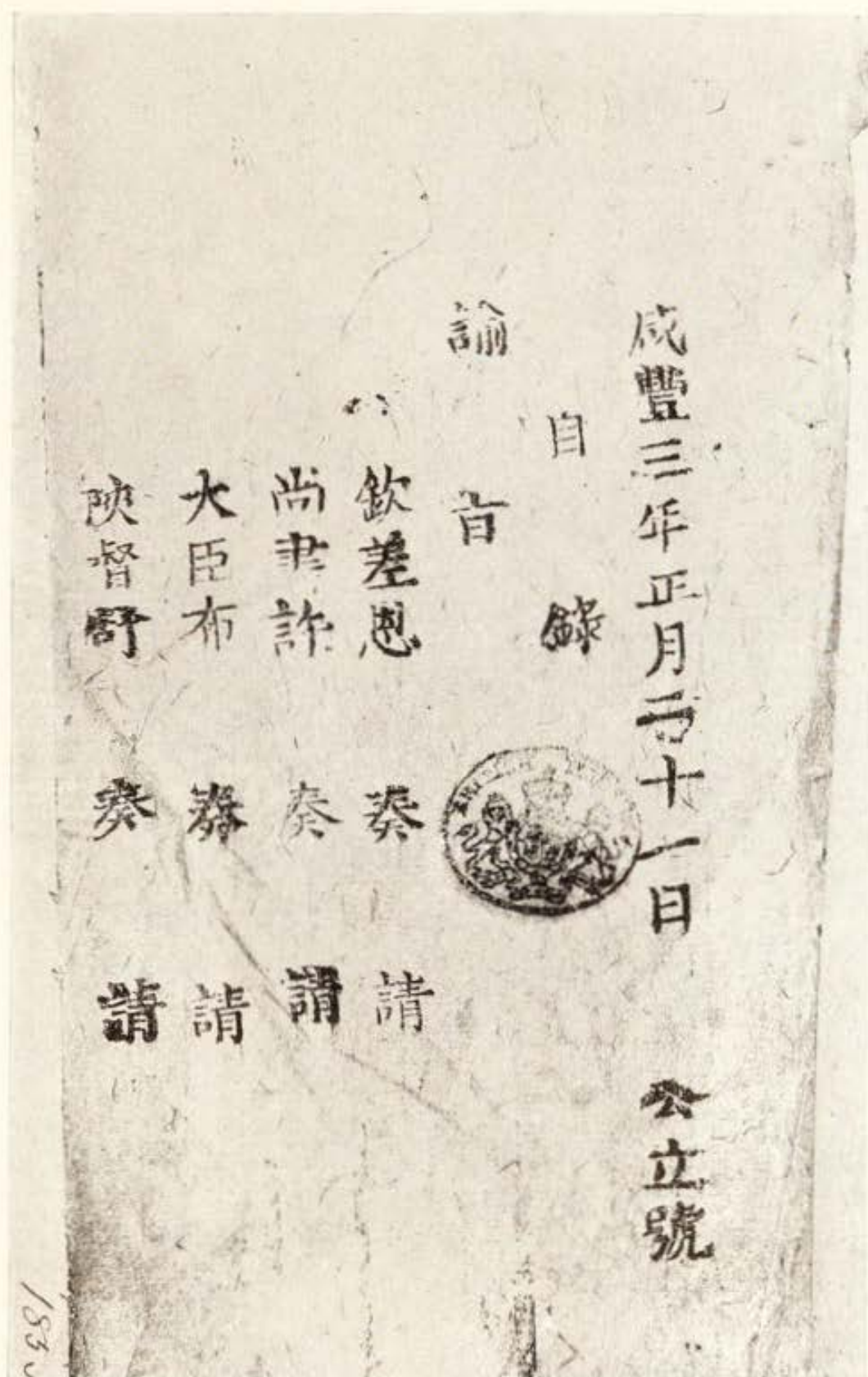


## Hierosolimorum excidium

THE NUREMBERG CHRONICLE

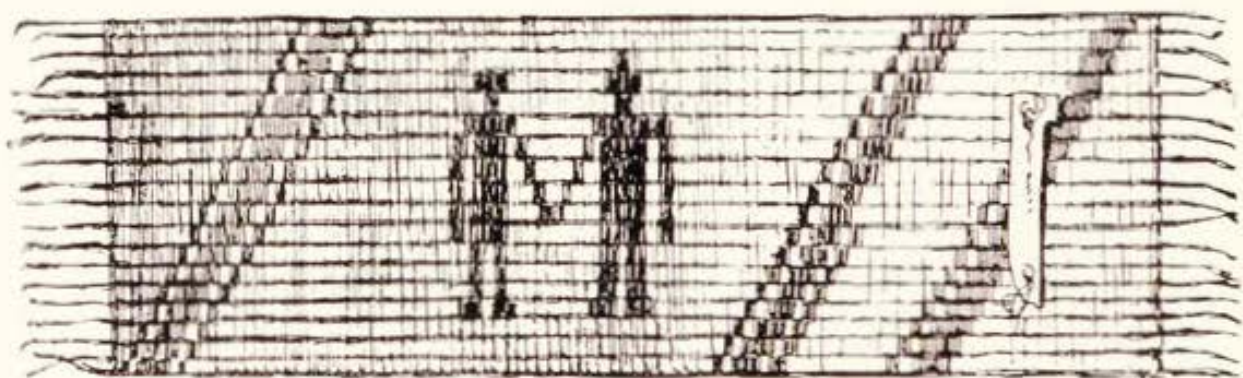
Printed by A. Koburger, 1493





THE PEKIN GAZETTE. CHINA

The earliest known printed periodical chronicle, said to have been founded long before the Christian Era. Its publication has been continuous up to the present day



NORTH AMERICAN WAMPUM CHRONICLE  
A treaty of peace concluded by William Penn, about 1681

[Go Back to INDEX \(PDF p. 10\)](#)

# THE EVOLUTION OF JOURNALISM

SOME FAMOUS LONDON JOURNALS  
AND SOME  
EDITORS OF MODERN LONDON CHRONICLES





CAXTON showing specimen of his printing to KING EDWARD IV. at the Almonry at Westminster

The 23. of May.

VV E E K E L Y  
Nevves from Italy,  
GERMANIE, HVNGARIA,  
BOHEMIA, the PALATINATE,  
France, and the Low Countries.

*Translated out of the Low Dutch Copie.*



LONDON,  
Printed by I. D. for Nicholas Bourne and Thomas  
Archer, and are to be sold at their shops at the  
Exchange, and in Popes-head Pallace.

1622.

THE WEEKLY NEWES

The first Periodical Newspaper printed in England. Founded  
and conducted by NATHANIEL BUTTER



THE  
Diurnall Occurrences,  
OR  
Dayly Proceedings  
OF  
Both Houses, in this *Great and Happy*  
PARLIAMENT,  
From the third of *November*, 1644,  
to the third of *November* 1641.  
WITH  
A Continuation of all the *Spee ches*,  
from *June* last, to the third of *November*,  
1641.

L O N D O N,  
Printed for *William Ceeke*, and are to be sold at his shop  
at *Furnifalls-Inne Gate*, in *Holbourn*, 1641.

THE DIURNALL OCCURRENCES

THE DIURNALL OCCURRENCES OR DAYLY PROCEEDINGS of Both Houses was first issued on Nov. 3rd. 1641, under the authority of the Long Parliament, and contained the first publication of parliamentary proceedings

MERCVRIVS  
AULICUS,  
A  
DIVRNALL,  
Communicating the intelli-  
gence, and affaires of the Court to  
the rest of the KINGDOME.



OXFORD,  
*Printed by H. Hall, for W. Webb.*  
*Ann. Dom. M. DC. XLII*

THE MERCURIUS AULICUS  
First printed in Oxford in 1642 at the time of the Civil War. It was the  
forerunner of many political journals entitled the MERCURY



## The London Gazette.

Published by Authority.

From Thursday, February 1. to Monday, February 5. 1665.

Hamburg, January 30.

**T**He Four Convey Ships from Hamburg, (which were for some time missing) viz. The *Monke*, the *Amity*, the *Brella*, and the *Gaist*, we were advised about Sunday noon, going to Anchor at *Gravelly Bay*, where at present they remaine.

**Dublin, Jan. 27.** On Tuesday last the Court of *Claimes* being heard before morning, appointed daies of hearing several causes, and adjourned the Court till the 31. instant. Two *Boards* were found in this Harbour, and a Ship laden with Canary wines bulged, of which it is feared, little can be recovered.

**Kingside, Jan. 29.** On Saturday last here arrived a great Ship from the *Barbadoes*, the *Daniel of London*, Captain *Samuel Kendall* Commander, of 12 Guns, and the *Adventure of London*, Capt. *Estherien* Commander, of 14 guns, the latter of which meeting with a *Flainger*, killed and wounded 12 of them, as we are assured by several Vessels, and more particularly by that Ship Company, who (as you were lately told) regained their Vessel, after they had been in the power of this *Flainger*. Five other *Barbadoes* Ships were in fight with a *Flainger* of 36 guns, one of which was taken, and 4 escaped. A Ship of London from *Bermuda*, Capt. *Bargrave* Commander, and a Ship from the *Madera* came in this day.

**Marfelles, Jan. 19.** The *St. Mala* Ships are now at *Toulon*, attending Monsieur de *Beaufort* Order for their departure, whole Fleet being intended to cruise, it is thought they will be disappointed of their Convey, in regard they cannot be ready in a Month, and what course they will then take, most conceive is yet uncertain.

This day came in a Ship of this Town from *Alexandria*, in 15 daies, who advieth, that the Grand Signor has hired several Ships for his service to carry Men and Provisions for *Candia*.

**Leguete, Jan. 16.** On the 12 instant the *Taxi Merdunt* arrived here, coming from *Algier* in 11 daies, who advieth that an *Algier* Ship had burnt the *Charity of Hamburg*, bound hither from *Archangel*, with 100 packs of Hides, &c. He saies further, that the *Algier* Men had sunk a Dutch *Frigate* with 100 Soldiers coming from *Spain* and *Naples*, and several Dutch and French. The Peace which the French have concluded with *Tunis*, is reported here with much disapprobation to the French, and the Italians understand it so, the honour of *Tunis* being chiefly to follow Trade, in which they found themselves so much debarr'd, that they were in conclusion to deliver up the French Captives gratis; and indeed they might have been brought to any terms, had the French not been so forward to pitch up a Peace with them. Since *Genoa* made their Agreement with the Grand Signor for *Tiniques*, they are endeavouring to make all sort of Cloth to send to *Savona* and *Constantinople*. The Grand Duke hath for some time been desirous by an *Insultuane* at *Florence*, from whence he is weekly expected, with the Court of *Pisa*.

**Cleve, Jan. 16.** Monsieur *Beverling* is withed here, and Monsieur *Colbert* shortly expected, who brings with him a rich Furniture of a Chamber, as a present from the King of *France* to the Elector. Reporting has been entered it is reported, to be put into the *Scots* General for his line, and so be made *Borgmaster* of the Town of *Targu*, but excuset all upon pretence of his want of health to undertake these employments; though it is suspected he hath other reasons for not joining in the present Government.

**Hamburg, Jan. 17.** The *Sardes* are now in earnest upon their march over the *Elbe*, and the Country people

about us, though they have no cause for it, are so jealous of suffering from the *Soldiers*, that yesterday they sent into this City above 100 Waggons, laden with *Hornbush* for security. Some would have it that *Bremen* is not yet fully agreed, but they cannot but see the necessity of falling into the *Swedes* hands, if they should offer to oppose them. Some further desire, that certain they have in hand, supposed to besiege *Emden*, and we have received from a very good hand, that the *Swedes* have sent to the Duke of *Lancashire* to consider well how he engages, or disposes of his Forces against the Prince of *Orange*, or in aid of the *Hollander*. And surely there is something more than economy in it, at least, that of *Orange* apprehend it is a far in the Prince of *Orange's* Court, in their general Hostility, as observed, that next to that of His Majesties of *Great Britain*, they remember the King of *Sweden's*, and then *Genoa's* rage.

**Warfaw, Jan. 7.** We are now againe at a stand, to judge what will be the end of the Affair with *Lubomirski*, who instead of sending his Plenipotentiaries to the Treaty, according to his promise, on the 19 of December, has in his Letter solicited that the High Marshal, the Master of the Horse, and the Representatives of the County, might be sent as Commissioners to the Frontiers of *Silesia* to Treat with him: This Proposition is not accepted by His Majesty, but referred to the Lord Bishop of *Cracow*, who has all along treated with *Lubomirski*, to confer further with him concerning it, according to the Declaration, published in *Ratis* and *Paderborn*.

**Rome, Jan. 16.** In the Consistory held the 11 instant, his Holiness represented to the Cardinals the great apprehensions he had, that *Christendom* would break out againe into Wars, and desired the assistance of their Prayers for preventing them. The Cardinal *Corrado*, the Dairer, took the Popes blessing, you heard of, so much to heart, that he is now reduced almost to the last gaspe. Here are come to this Town a company of Ordinary Preyers, who acted a play, Entitled *Staramusta soldan a Gigitri contro Mori*, which reflecting upon the French late enrage them, Monsieur de *Boulemont*, who acts here for the French King, complained to the Popes Nephew of this designed insolence and Nationall dishonour, as he called it, upon which the poor Preyers are laid by the heels, which the Town takes very ill, as being in this time of Recreation denied the contentment of a peice of mirth, which was added to them at *Florence*, and other parts of *Italy*, with great applause. Here is in Town the Prince of *Briviere*, Brother to that Elector, the younger Brother of the Duke of *Longueville*, and a son of the Count of *Harcourt*, who came to see the curiosities of this City.

**Darham, Jan. 27.** Wednesday last was buried here Mr. *Anthony Pearsons*, a man particularly noted in these parts, for having passed heretofore through all the degrees of Separation and Phanatism, in all of which he was ever observed as a principal leader; but having lived to see his Error sometime before his death, he humbly, with his children and family, had received Episcopal confirmation, and did now at last upon his Deathbed very solemnly confess his former Errors, and the party that first seduced him into them, declaring that he now dyed a true Son of the Church of *England*.

**Falmouth, Jan. 17.** A Vessel of about 80 Tuns arrived here from *Dublin*, bound with Tallow, Hides, and provision for *Cadix*, which proves to be leaky, that she was forced to run ashore here, and appears to be so unable to perform her voyage, that the Master will be obliged to sell Ship and Goods. Several of the Ministers, &c. of this County have made their subscriptions required by the late Act of Parliament.

THE LONDON GAZETTE

First published in London, February 5th, 1665. under the control of Joseph Williamson, Charles Perrot being for some time acting editor



Numb.

## The Daily Courant.

Wednesday, March 11. 1702.

From the Harlem Courant, Dated March 13. N. S.

Naples, Feb. 22.

On Wednesday last, our New Viceroy, the Duke of Ecalena, arriv'd here with a Squadron of the Gallies of Sicily. He made his Entrance dress'd in a French habit; and to give us the greater Hopes of the King's coming hither, went to Lodge in one of the little Palaces, leaving the Royal one for his Majesty. The Marquis of Grigni is also arriv'd here with a Regiment of French.

Rome, Feb. 21. In a Military Congregation of State that was held here, it was Resolv'd to draw a Line from Alsace to the Borders of the Ecclesiastical State, thereby to hinder the Incursions of the Transalpine Troops. Orders are sent to Civita Vecchia to reinforce the Gallies, and to strengthen the Garrison of that Place. Signor Caffi is made Governor of Perugia. The Marquis del Vasto, and the Prince de Calera continue still in the Imperial Ambassador's Palace; where his Excellency has a Guard of 50 Men every Night in Arms. The King of Portugal has desir'd the Arch-Bishoprick of Lisbon, vacant by the Death of Cardinal Soarez, for the Infante his second Son, who is about 11 Years old.

Munich, Mar. 2. Orders are sent to the 2 Regiments of Foot, the 2 of Carabiers, and to that of Dragoon, which are lock'd up from Hungary, and are on their way to Italy, and which consist of about 14 or 15000 Men to hasten their March thither with all Expedition. The 6 new Regiments of Hussars that are now raising, are in so great a forwardness, that they will be compleat, and in a Condition to march by the middle of May. Prince Lewis of Baden has written to Court, to excuse himself from coming thither, his Presence being so very necessary, and so much desired in the Upper-Rhine.

Strasbourg, Mar. 12. The Marquis d'Uxelles is come to Strasbourg, and is to draw together a Body of some Regiments of Horse and Foot from the Garrison of Alsace; but will not listen those of Strasbourg and Landau, which are already very weak. On the other hand, the Troops of the Imperial Majesty, and his Allies, are going to form a Body near Germersheim in the Palatinate, of which Place, as well as of the Lines at Spire, Prince Lewis of Baden is expected to take a View, in three or four days. The English and Dutch Ministers, the Count of Erlo, and the Baron Vander Meer, and likewise the Imperial Envoy Count Lowenstein, are gone to Nimwegen, and it is hop'd that in a short time we shall hear from thence of some favourable Resolutions for the Security of the Empire.

Lisbon, Mar. 14. The French have taken the Cannon de Louze, who was Secretary to the Dean de Meun, out of our Castle, where he has been for some time a Prisoner, and have deliver'd him to the Provost of Manbeuge, who has carry'd him from hence, but we do not know whither.

Rome, Mar. 13. Our Letters from Italy say, That most of our Reinforcements were Land'd there; that the Imperial and Ecclesiastical Troops seem to live very peacefully with one another in the Country of Parma, and that the Duke of Vendome, as he was visiting several Posts, was within 100 Fades of falling into the Hands of the Germans. The Duke of Chartres, the Prince of Conti, and several other Princes of the Blood, are to make the Campaign in

Flanders under the Duke of Burgundy; and the Duke of Maine is to Command upon the Rhine.

From the Amsterdam Courant, Dated Mar. 12.

Rome, Feb. 25. We are taking here all possible Precautions for the Security of the Ecclesiastical State in this present Conjunction, and have desir'd to raise 1000 Men in the Cantons of Switzerland. The Pope has appointed the Duke of Berwick to be his Lieutenant-General, and he is to Command 6000 Men on the Frontiers of Naples: He has also sent upon him a Pension of 4000 Crowns a year during Life.

From the Paris Gazette, Dated Mar. 17. 1702.

Naples, Feb. 27. 600 French Soldiers are arriv'd here, and are expected to be follow'd by 2400 more. A Courier that came hither on the 14th has brought Letters by which we are assur'd that the King of Spain designs to be here towards the end of March; and accordingly Orders are given to make the necessary Preparations against his Arrival. The two Troops of Horse that were Commanded to the Abruzzo are post'd at Pescara with a Body of Spanish Foot, and others in the Fort of Monsione.

Paris, March. 15. We have Advice from Toulon of the 5th Instant, that the Wind having long stood favourable, 22000 Men were already sail'd for Italy, that 2400 more were Embarking, and that by the 15th it was hop'd they might all get thither. The Count d'Estrees arriv'd there on the Third Instant, and set all hands at work to fit out the Squadron of 9 Men of War and some Frigates, that are appointed to carry the King of Spain to Naples. His Catholick Majesty will go on board the *Thaïs*, of 110 Guns.

We have Advice by an Express from Rome of the 15th of February, That notwithstanding the pressing Instances of the Imperial Ambassador, the Pope has Condemn'd the Marquis del Vasto to lose his Head and his Estate to be confiscated, for not appearing to Answer the Charge against him of Publickly Scandalizing Cardinal Janion.

## ADVERTISEMENT.

IT will be found from the Foreign Printer, which from time to time, as Occasion offers, will be mention'd in this Paper, that the Author has taken Care to be daily furnish'd with all that comes from Abroad in any Language. And for an Assurance that he will not, under Pretence of having Private Intelligence, impose any Additions of suppos'd Circumstances to an Action, but give his Extracts truly and Impartially; at the beginning of each Article he will quote the Foreign Paper from whence he takes, that the Publick, seeing from what Country a piece of News comes with the Allowance of that Government, may be better able to Judge of the Credibility and Fairness of the Relation: Nor will he take upon him to give any Comments or Conjectures of his own, but will relate only Matter of Fact, supposing other People to have Sense enough to make Reflections for themselves.

The Courant (so the Title shows) will be Publish'd Daily; being design'd to give all the Material News as soon as every Post arrives: and it consisteth in half the Contents, to save the Publick at least half the Expence, of ordinary News-Papers.

L O N D O N. Sold by E. Mallet, next Door to the King's Arms Tavern at Fleet-bridge.

The first daily morning paper was the DAILY COURANT, first published on March 11th, 1702, by a bookseller named Mallet



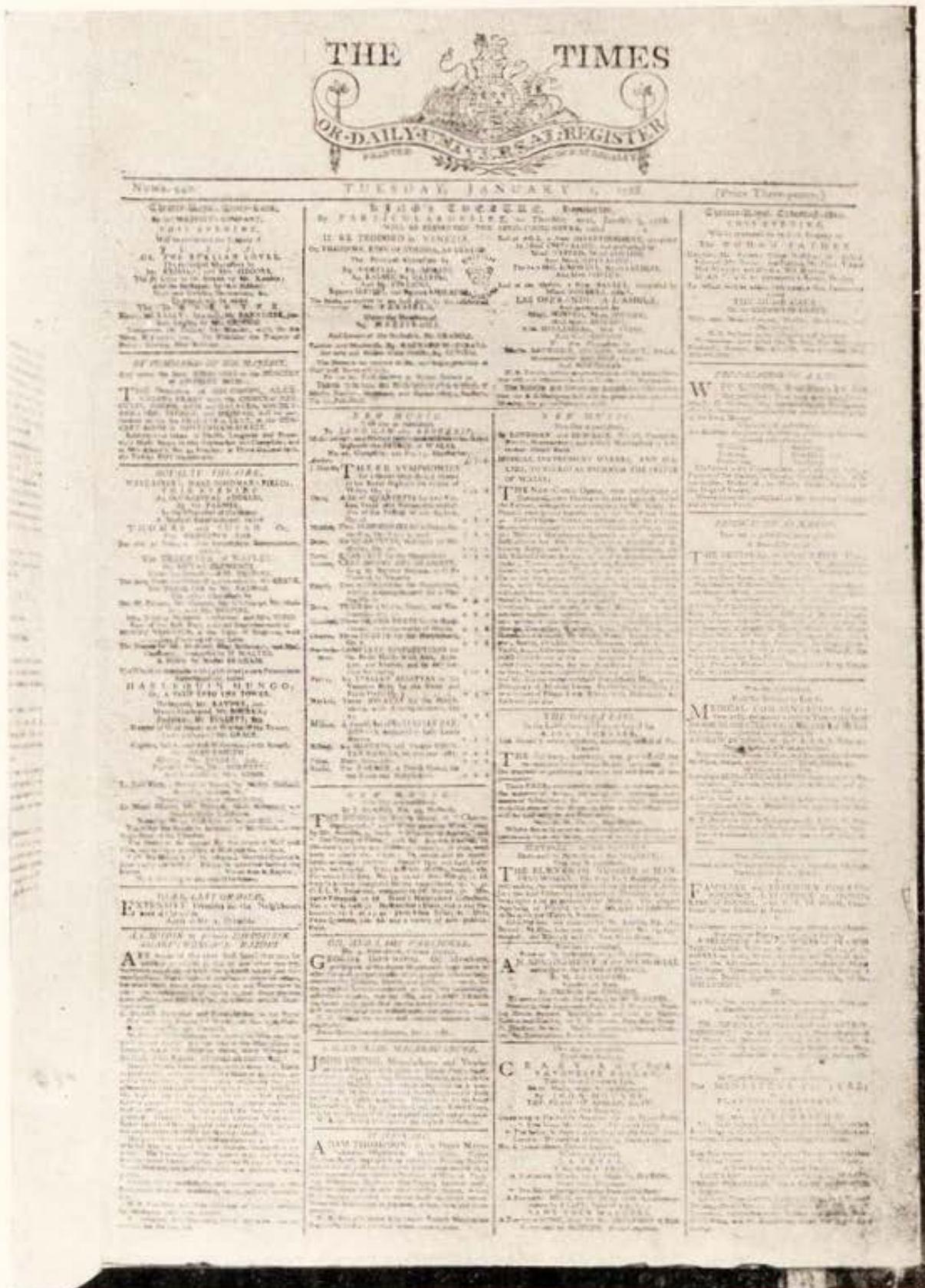




FABIAN WARE

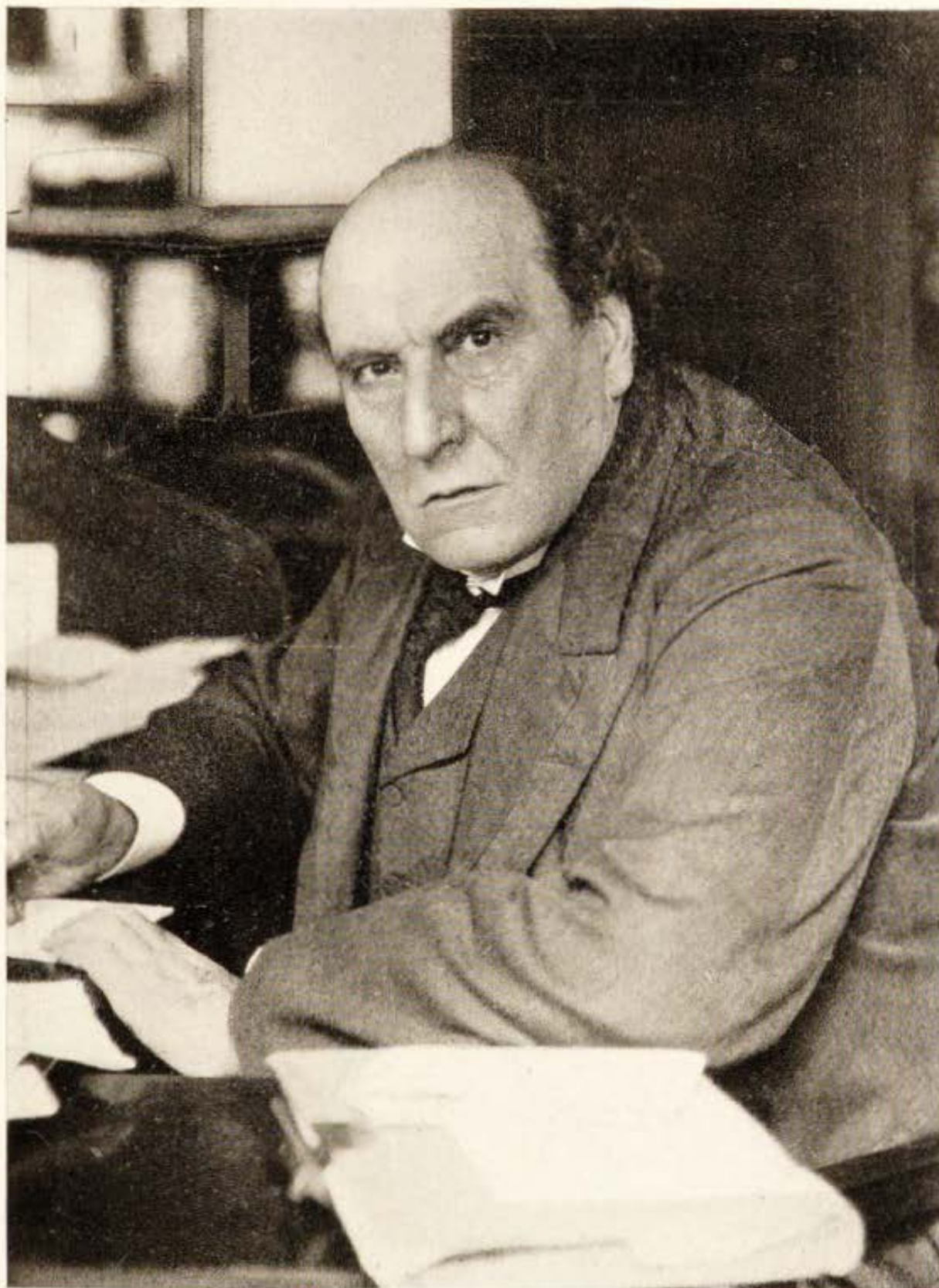
Editor of the MORNING POST Born at Clifton, Bristol, 1869. Educated by private tutors and at the Universities of London and Paris; Bachelier-ès-Sciences 1894. Ten years assistant master in secondary schools; education examiner and inspector. Director of Education, in Transvaal, 1901, 1903-5; and Orange River Colony, 1903-5. Contributor to the MORNING POST 1899; became Editor 1905





THE TIMES

Originally issued under the title **THE DAILY UNIVERSAL REGISTER**, founded December 13th, 1785; re-founded as **THE TIMES** by **JOHN WALTER** (the first), January 1st, 1788.



C. MOBERLEY BELL

Managing Editor of THE TIMES. Born 1847. Author of KHEDIVES AND PASHAS, 1884; EGYPTIAN FINANCE 1886; FROM PHARAOH TO FELLAH, 1889



Price Three Pence Halfpenny

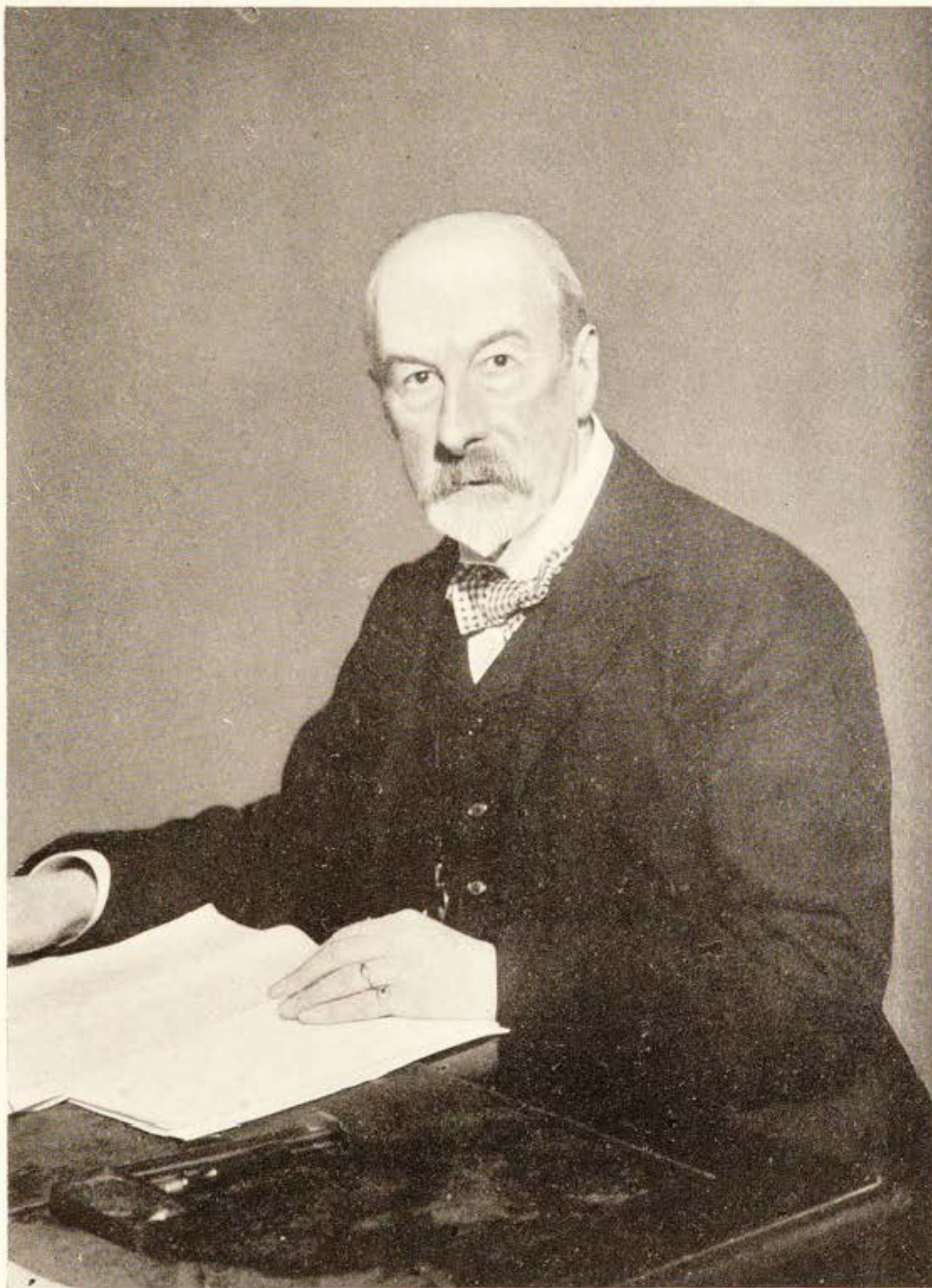
...the ... of ...

MORNING

ADVERTISE

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GEORGE WASHINGTON TALBOT

Editor of the MORNING ADVERTISER since 1903. Born in Dublin, December, 1848; son of the late Henry Wm. Talbot, newspaper proprietor of Williamstown, Co. Dublin; educated at Kingstown School and Kilkenny College. After some experience of journalism in Ireland, joined the staff of the MORNING ADVERTISER in 1887.



The Globe.

THURSDAY EVENING, 4. 1871

**Grass: 300000**

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This image shows a vertical strip of a document page. On the left side, there is a dark, textured binding edge, possibly made of leather or a similar material, which appears worn and aged. The right side of the strip is a light, off-white or cream-colored paper surface. The paper has a slightly mottled texture and some minor discoloration or foxing, characteristic of old paper. There is no text or other markings visible on this strip.

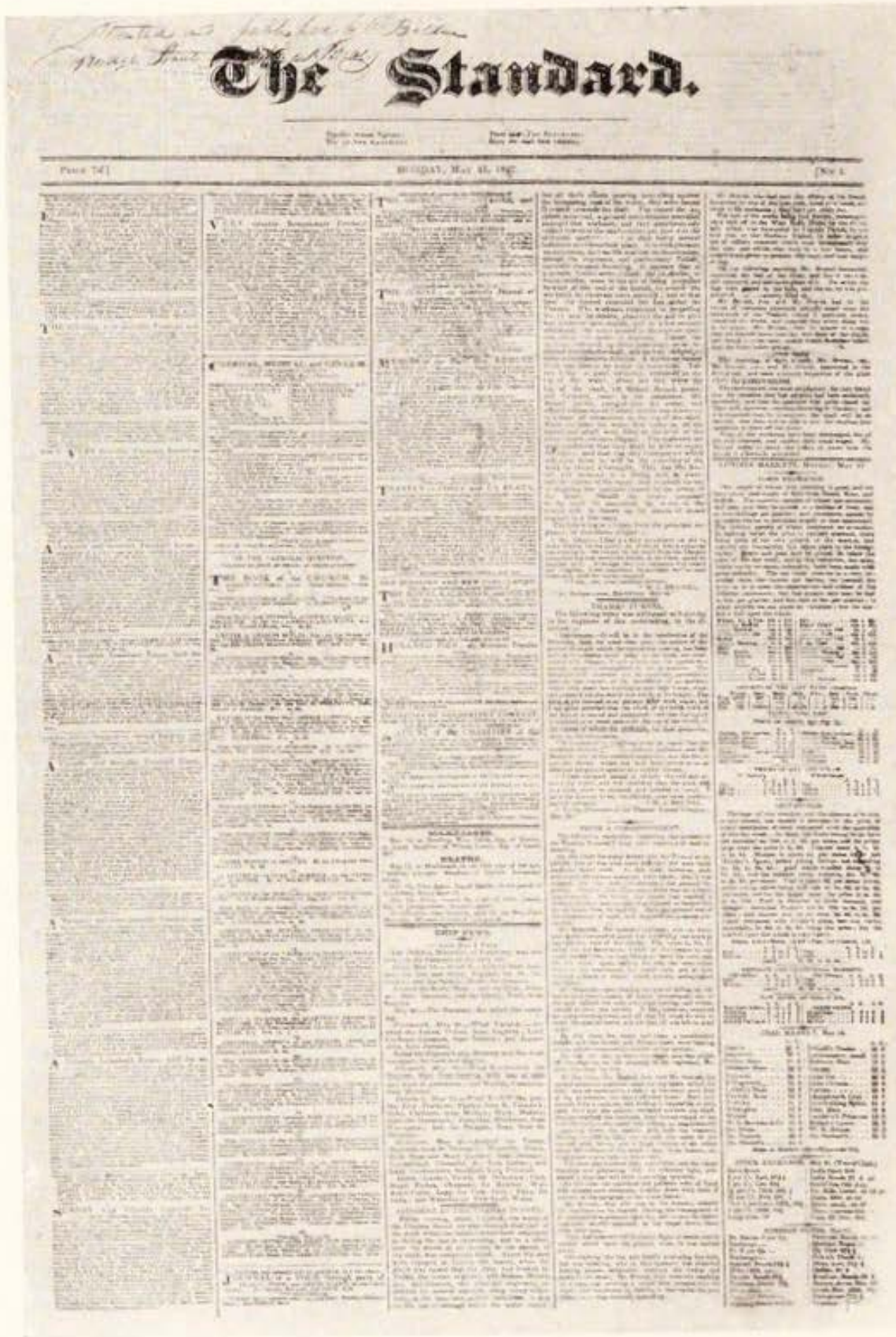




#### HILDEBRAND HARMSWORTH

Proprietor of the *GLOBE* newspaper and of *GOLF ILLUSTRATED*. Born 15th March, 1872, son of the late Alfred Harmsworth, barrister. Educated by private tutors and at Merton College, Oxford. Contested Gravesend as Imperial Liberal in 1900. started *NEW LIBERAL REVIEW*, 1901. Joined Mr. Chamberlain's fiscal reform party in 1904, and contested Mid Salop in 1906





THE STANDARD

Founded and conducted by DR. GIFFARD in 1827





H. A. GWYNNE

Editor of THE STANDARD since 1904. Born in 1866. Was TIMES correspondent in the Balkans; Reuter's in Roumania, 1893; in Ashanti, 1895; with Lord Kitchener's Expedition to Dongola, 1896; with the Greco-Turkish War, 1897; and the Berber and Peking Expedition, 1898; and afterwards went through the Boer War. Appointed Foreign Director of Reuter's Agency, 1904.

PUNCH

OR THE

LONDON CHARIVARI



VOLUME THE FIRST.

LONDON:  
PUBLISHED FOR THE PROPRIETORS, AT THE OFFICE, 13, WELLINGTON STREET, STRAND,  
AND SOLD BY ALL BOOKSELLERS.

PUNCH

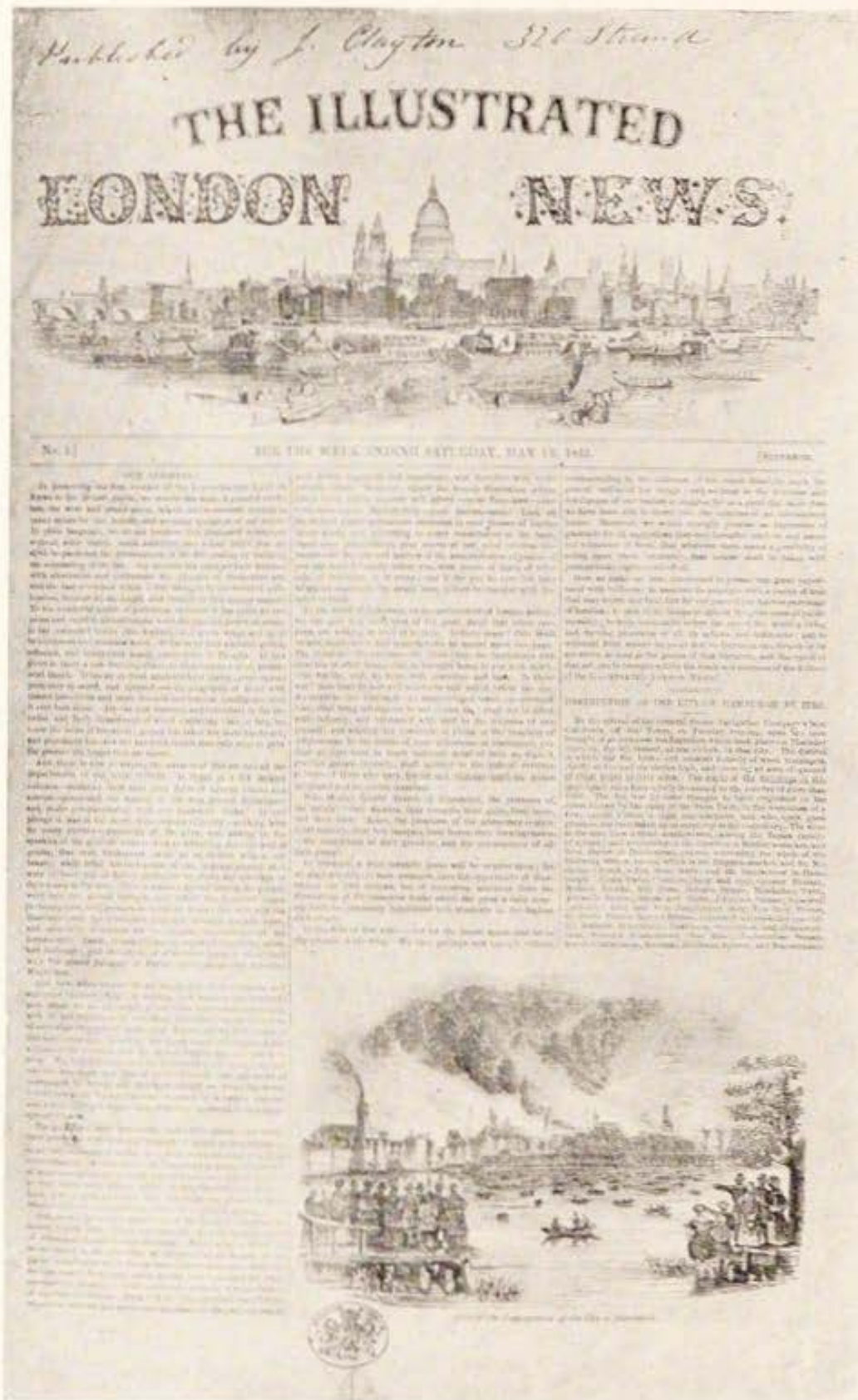
Founded in 1841, and first edited by MARK LEMON





OWEN SEAMAN. M.A., D. LITT.

Editor of PUNCH since 1906. Born 1861. Professor of Literature at Durham College of Science, Newcastle-on-Tyne, 1890; began writing for PUNCH and for NATIONAL OBSERVER as "O.S." in 1894; joined staff of PUNCH, 1897, and became Assistant Editor, 1902. Called to the Bar, Inner Temple, 1897



ILLUSTRATED LONDON NEWS  
Founded in 1842 by HERBERT INGRAM





SIR WILLIAM INGRAM, BART.

Managing Director Illustrated London News and Sketch, Ltd. Born, 1847; son of the late Mr. Herbert Ingram, M.P. for Boston, founder of the ILLUSTRATED LONDON NEWS. M.P. for Boston, 1874-80, 1885-86, 1892-95





THE DAILY NEWS

Founded in 1846 by Bradbury and Evans, with CHARLES DICKENS  
as first Editor





ALFRED G. GARDINER

Editor of the DAILY NEWS. Born in 1865; received his early journalistic training on the staff of the ESSEX COUNTY CHRONICLE, published in his native town, Chelmsford. After a brief stay at Bournemouth, he joined the NORTHERN DAILY TELEGRAPH at Blackburn in 1886, and remained with that paper until his appointment to the editorship of the DAILY NEWS in 1902. Author of a series of pen portraits entitled "Prophets, Priests and Kings"





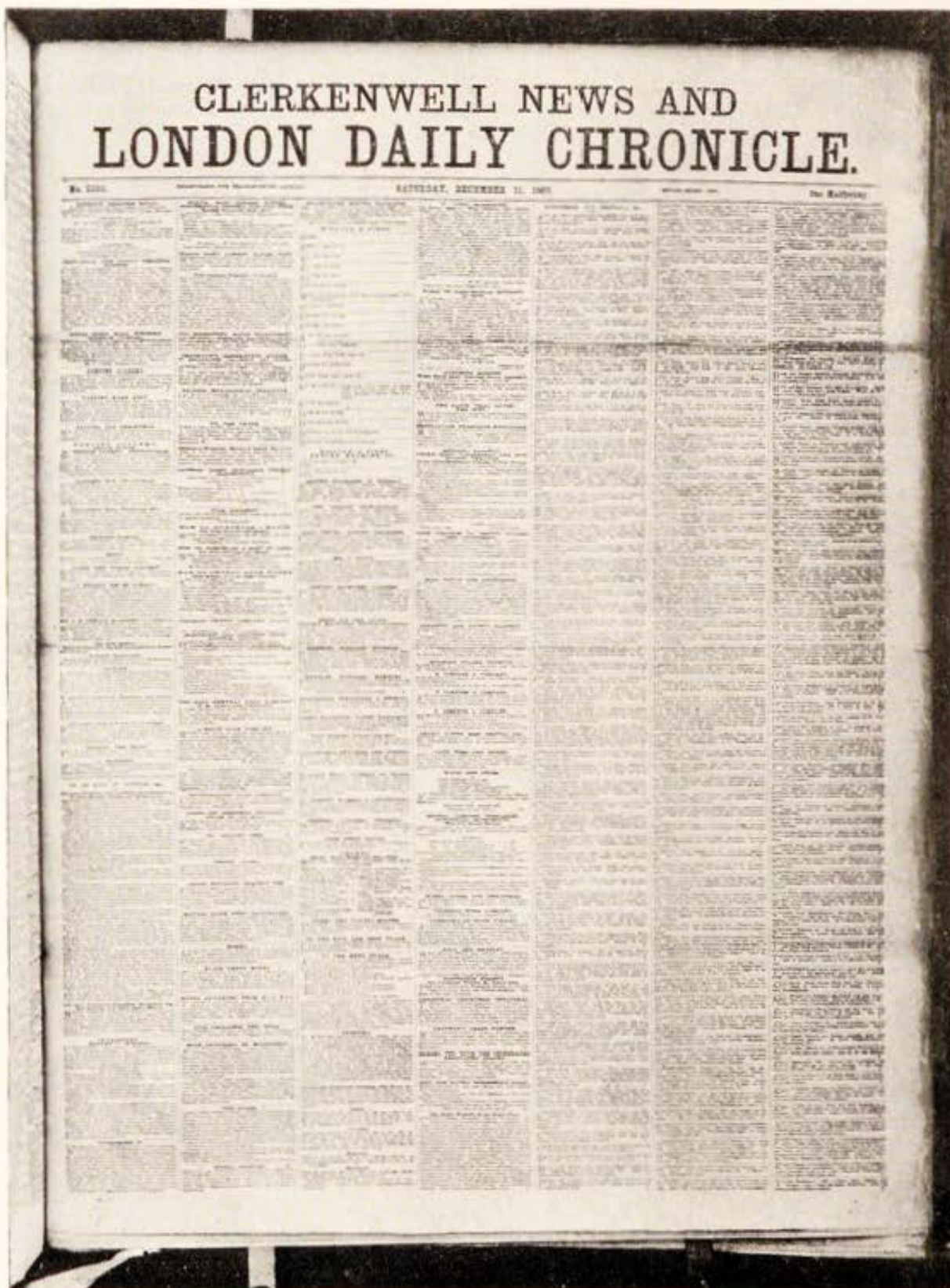




JOHN MERRY LE SAGE

Lieutenant of the City of London; Managing Editor of the DAILY TELEGRAPH. Born 1837. After a short provincial career joined the staff of the DAILY TELEGRAPH, and served as special correspondent in France, Germany, Italy, Russia, Egypt, America and Canada; accompanied the Germans in the 1870-71 campaign, and Lord Wolseley in Egypt in 1882; and was in Paris during the Commune. Acting Editor of the DAILY TELEGRAPH for many years.





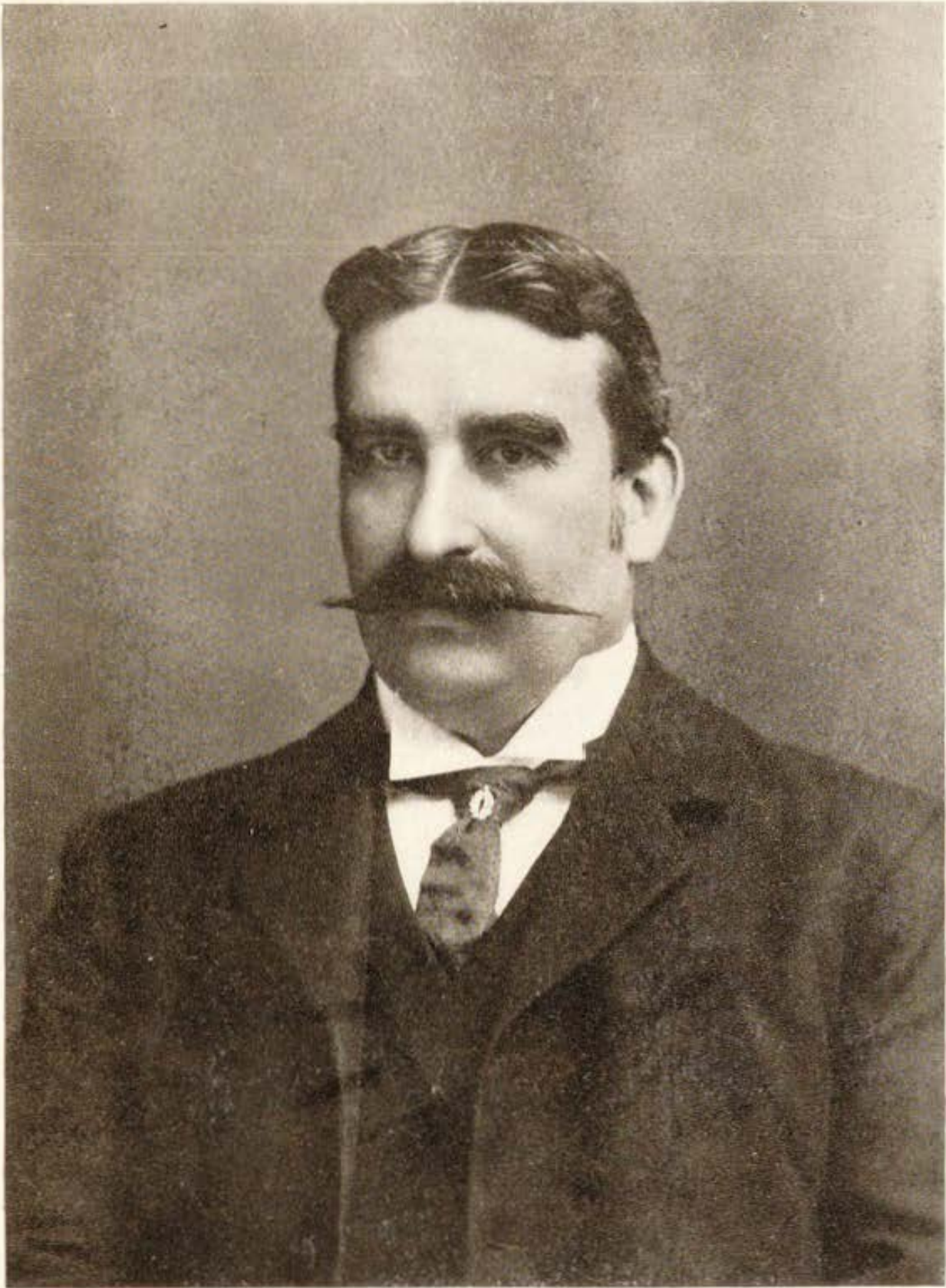
THE DAILY CHRONICLE

Founded 1869 on the older CLERKENWELL NEWS, which dated from 1855,  
by EDWARD LLOYD, and first edited by R. WHELAN BOYLE

The Daily Chronicle

Founded 1869 on the older Clerkenwell News, which dated from 1835, by Edward Lloyd, and first edited by R. Whelan Boyle





ROBERT DONALD

Managing Editor of the DAILY CHRONICLE and LLOYD'S WEEKLY NEWS;  
Founder and Editor of the MUNICIPAL JOURNAL. Born in Scotland in 1861.  
Has had varied journalistic experience in Edinburgh, Northampton, Paris,  
New York, London, etc. Publishes the MUNICIPAL YEAR BOOK and the  
LONDON MANUAL



THE  
PALL MALL GAZETTE  
*An Evening Newspaper and Review.*

No. 1.—Vol. I.

TUESDAY, FEBRUARY 7, 1865.

Price Two-pence.

## THE QUEEN'S SECLUSION.

A LITTLE paragraph appeared in the newspapers lately, to revive a hope which was to have been fulfilled to-day, and has not. "We are informed that Her MAJESTY the QUEEN will open Parliament in person next session!"—this was the little paragraph—printed, too, in that authoritative large type which carries conviction straight into the minds of most newspaper readers. But somehow the herald who brought such good tidings from Court was little credited. The trumpet sounded—that we all heard; but no convincing echo answered it—not even in those hollow places in our own hearts where dwells the hope of what we much desire. The most timid inquirer hesitated to believe; and he whose faith in editorial announcements had hitherto been complete, found himself startled by a strangely courageous scepticism. Was the announcement authorized at all by any one? Had we not been told of journalists and politicians who endeavoured to achieve what they wished by declaring it already certain? These questions were asked by many people. The answer to the first one is that the QUEEN never at any moment intended to open Parliament this session—there is our own authoritative large type to prove it—and to the other, that if the trick was played, it was a trick which only a very few philosophers can muster morality enough to condemn. There may be some politicians of the fermentative platform kind who secretly rejoice that (if tried) it did not succeed, but they are not philosophers.

It is when we consider what these gentlemen are that we most regret the QUEEN'S long absence from what is called public life. If it were not for them, and if Her MAJESTY'S retirement were not brought home to us strongly now, when a Parliament is about to end and agitation to begin, we should say nothing about it. Then, too, indeed, other reasons for regret, but none that we can think of which justify the recumbent tone in which some journalists have lately discussed the subject. What would justify such a tone is a state of things which does not exist. The Sovereign of England is not an autocrat, and to carry and committed to responsibilities which must necessarily be neglected in the indulgence of personal sorrow. Her Majesty is able and honest; and, what is more—what is continuous, is fact—the QUEEN is known never to neglect the real duties of her sovereignty. Their faithful performance goes on, and has always gone on; and while that is so, our concern that her grief should continue should cease with the sympathy of a loyal and loving people. Of such sympathy there cannot be too much. Taking it for a moment out of the region of mere human kindness where it were better left, we may go so far as to say there are sound political reasons why it should be encouraged; unless, indeed, the country has had enough of the great blessing which the QUEEN'S reign is said to have brought upon it ever since her rule began. We have all been lying under a mistake for twenty years if the nation has not been purified by an example of homely affection and of household faith in that place where example is so potent for good or evil—the palace. Some observers are of opinion, indeed, that a certain reaction against this beneficent influence has set on by that as it may, we cannot think the reaction likely to be forwarded by the sincere and lasting sorrow of a wife for the loss of her husband; or by our respect for it.

There are some other considerations which have been almost as much forgotten as these. There is the fact that a monarch is still a human being; and that a people has no right to ask him to smile when his heart is ill at ease, or violate the most natural, most pious, most imperative instincts of his human nature in order to make a pageant. Again, our affection for the QUEEN, our deepest reverence for her, has grown out of the knowledge that she is not only a queen, but a good and most womanly woman; and yet how many people have considered that the very qualities they revere in the woman have diminished the grief of the queen? We all understand what is meant by the "sacredness of sorrow," and know that to turn our eyes upon one whose heart is deeply smitten, is to add to the pain a new and intolerable distress. This is so if you are happily unconscious of all but a dozen people, whose gaze you easily can and do escape. But if you are a queen, then you cannot escape your grief, which should be secret to be endurable, is known to all the world—taken up by all the world—gazed upon wherever you turn. And the more womanly you are, the more you are

conscious of an observation which is scarcely the less painful for being sympathetic. Therefore we say Her MAJESTY'S seclusion is exactly what might have been expected of her position and her virtues; and that inasmuch as we respect them we must expect their natural consequences, not forget that her retirement is the most natural one of all.

But this is not saying we wish the seclusion to continue. What we do say is, that with the fullest sense of what is due to Her MAJESTY, with the strongest inclination to take no part in the discussion of this subject, we cannot resist the suggestions in the extremity of to-day. In brief, we cannot help speculating, not upon the regret or the disappointment of the nation at large, in seeing another fair occasion for the QUEEN'S re-appearance amongst us pass by, but upon the satisfaction it may give that small, determined coterie of Americanized politicians who are so particularly active just now, and whom we shall behold still more active before another Parliament can be assembled. Who can doubt that they do find satisfaction in the QUEEN'S absence, since more, from the most important and significant of all State ceremonial? To be sure, they are not likely to acknowledge such sentiments. There are many bold speakers amongst them, and a carnival of declamation is fast approaching; but we do not suppose any demagogue so rash as to suggest the question yet, while that as the country gets on very well with a monarch in retirement (this House of Trade returns will sufficiently prove it) why not abolish the monarchy altogether? We do not expect him to point out so soon that people may become accustomed to the absence of a Sovereign from public business as to make them ready converts to Americanism and the democratic idea. But it is just because he is not likely to speak that we feel bound to speak for him—now, while the people are not yet so accustomed to the QUEEN'S seclusion, and earnestly desire her back again. Perhaps the event of to-day was not the most fitting occasion for her return to public life; perhaps we may hope that when the new Parliament is called together, Her Majesty will come once more face to face with her people. If so, we shall all rejoice—all but those who are speculating hopefully now upon the probability that her seclusion may be confirmed by habit, and who are perfectly prepared to turn it into a political argument.

Private letters from St. Petersburg and Moscow say that the example of the Moscow assembly, which has adopted by a very large majority an address in favour of a constitution, will be followed by the circles of the other provinces of the empire. The proceedings at the Moscow assembly were published without being submitted to the censorship, and the printer of the journal in which they appeared is being prosecuted criminally.

The *Standard* publishes a letter yesterday from St. Petersburg, in which the writer, apparently an official, denounces the English public, with great complacency, the previous current, during Russian festivities of all classes for discountenancing the courageous champions of the initiative to obtain the establishment of a representative assembly. Such animosity would, of course, be a terror to the members of the police service, whose aim it could ensue, if it could not legally control them. This is just the good—perhaps the only good—due the Kiehority has done in Austria. "But," say the functionaries and the demagogues of the latter kind, "if a legislative body were to be formed by election, as at the present day, only members of the aristocracy would be chosen; we it is well known that they alone are capable of discussing political questions." The merchants are against such matters, and the peasants are steeped in the greatest ignorance. The functionaries, then, from fear of exposure, and the demagogues from envy, would postpone the formation of political assemblies indefinitely, or what comes to the same thing, until the spread of education throughout the empire should raise the other classes to the level of the nobles. These views, in default of more plausible ones, have been adopted by the Russian Government, and we find them expressed with great earnestness in a paragraph which bears the following cynical heading—"The Moscow Nobility demanding a Constitution."

How perverse on the part of the Russian nobility! So in ancient times the discontented Hebrews, in the condition of their hearts, called out for a King! But the Hebrews had their King, whereas the Russian landed proprietors, with an autocrat supported by a mass of bribe-taking officials on one side, and with hordes of newly-liberated serfs on the other, have no chance whatever of getting a constitution. A few of the nobles in their own privilege accorded to them of going to the East of Russia in their own carriages, and retaining there with further notice. The others will have to be sent, or they may have the same measure meted out to them which they were so glad to see meted out last year and the year before to the Poles. [1]

THE PALL MALL GAZETTE

Founded by GEORGE SMITH (of Smith & Elder) on February 7th, 1865, and first edited by FREDERICK GREENWOOD







THE GRAPHIC  
Founded December 1869





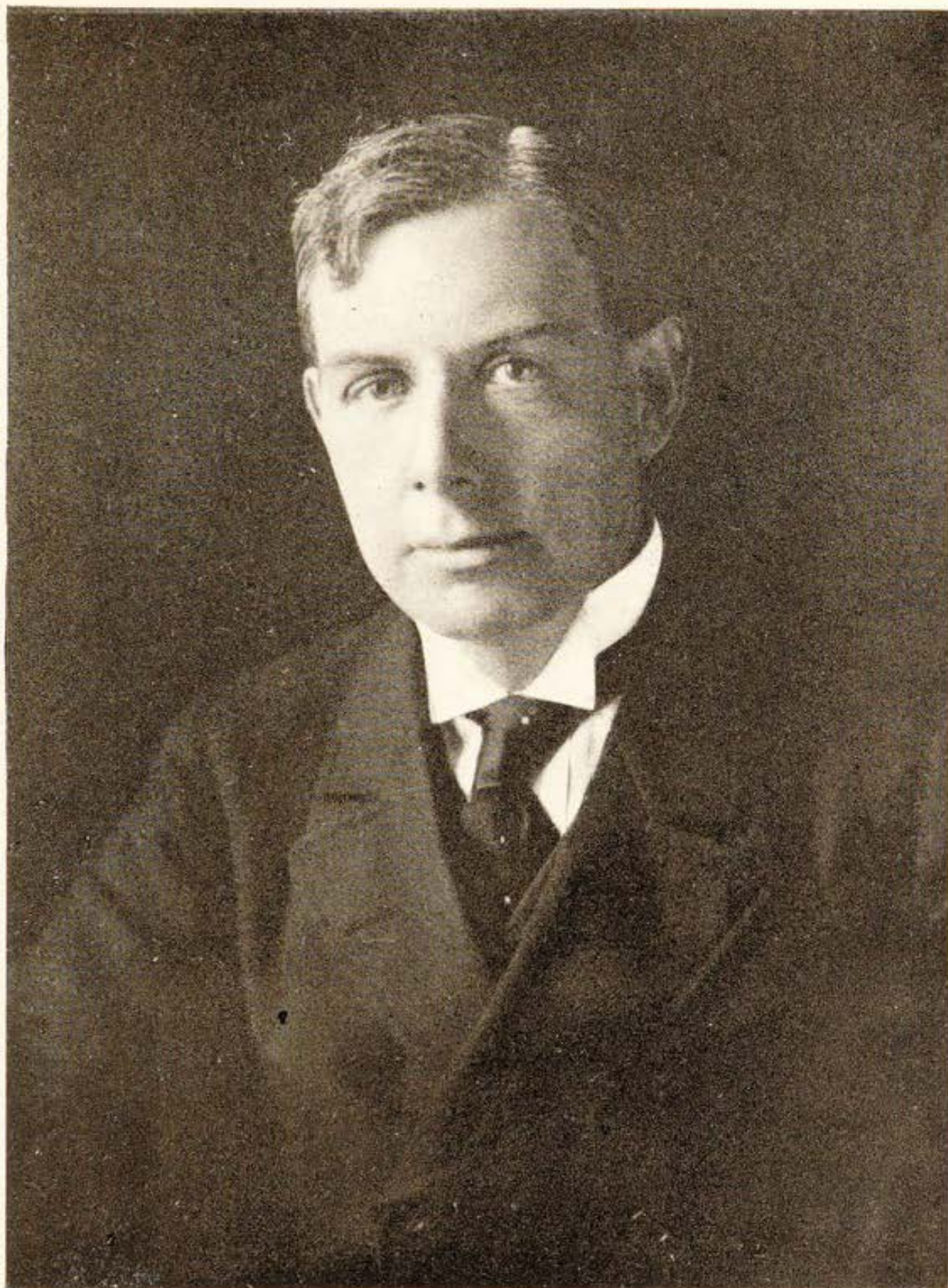
CARMICHAEL THOMAS

Born in 1856, and has been at the GRAPHIC since he was 17 years of age. He has been engraver, Sub-Editor, Editor and Chairman, also Managing Director of the GRAPHIC, DAILY GRAPHIC, and BYSTANDER, which last position he still holds. He has read papers on illustrated journalism before various institutions and has been connected with the Royal Society of Arts as treasurer, and vice-president and member of the council. Has served on committees at the Board of Education in connection with fine arts. Vice-president of the Newspaper Society, 1909









THOMAS MARLOWE

Editor of the DAILY MAIL. Born at Portsmouth, 18th March, 1868; son of T. H. Marlowe, Newtown, Waterford. Educated at Portsmouth, Dublin, Waterford, Queen's College, Galway, London Hospital. Managing Editor of the DAILY MAIL from 1899-1904. Director of Associated Newspapers, Limited



# THE SPHERE

IN ILLUSTRATED ARTICLES FOR THE HOME

Volume 1. No. 1.

London, January 25, 1900.

Number Weekly.



OUR WATCHWORD FOR QUEEN AND KING.

THE SPHERE  
Founded January, 1900





CLEMENT KING SHORTER

Editor of THE SPHERE. Commenced his career in the Civil Service (Somerset House); Assistant Editor PENNY ILLUSTRATED PAPER, 1890; Editor ILLUSTRATED LONDON NEWS, 1891-1900. In conjunction with Illustrated News Company founded the SKETCH in 1893 and edited it for seven years, at the same time continuing his editorship of the ILLUSTRATED LONDON NEWS and the ENGLISH ILLUSTRATED MAGAZINE. One of the founders of the Omar Khayyam Club



THE DAILY EXPRESS

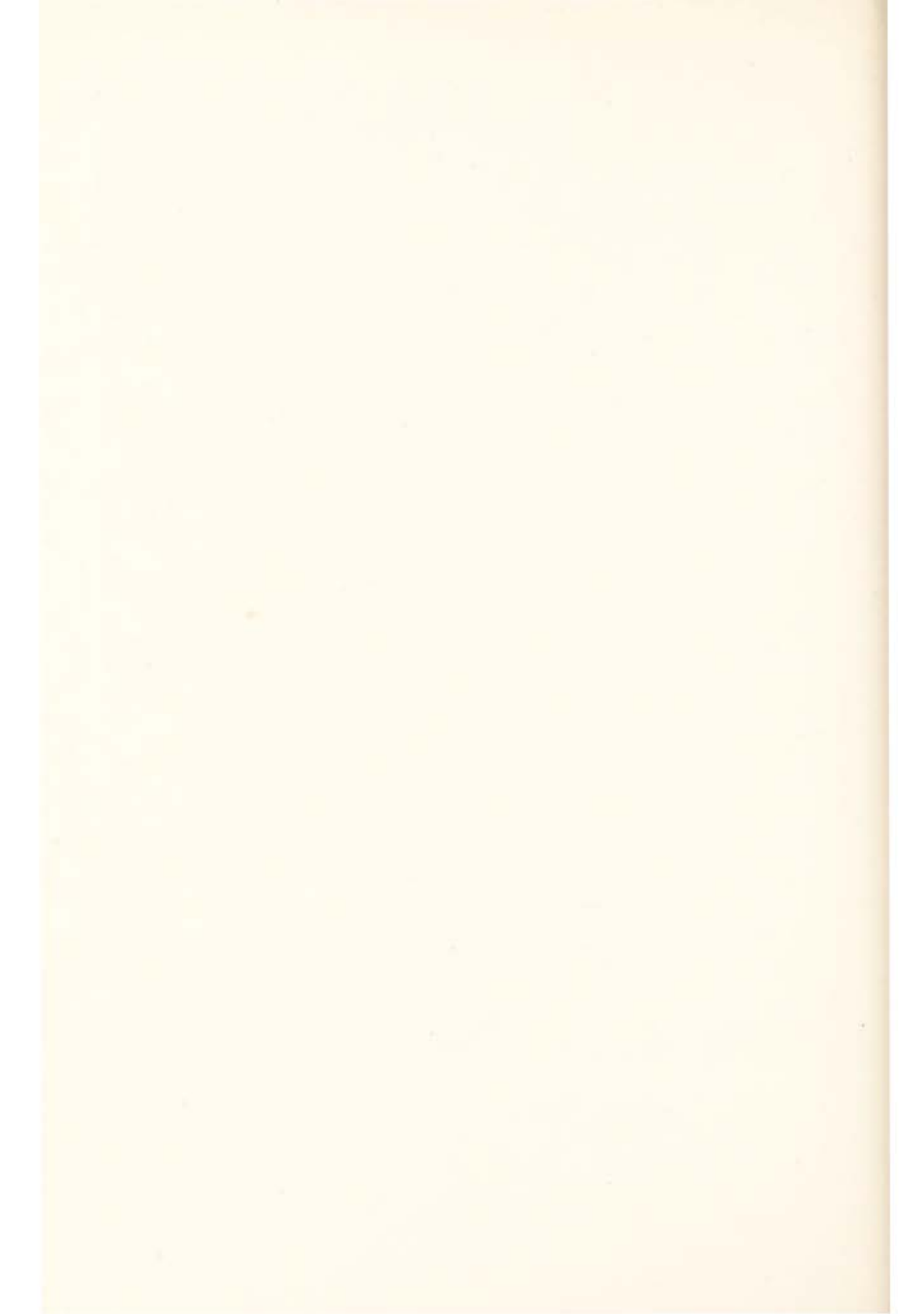
The Daily Express  
Founded in 1900 by C. Arthur Pearson





RALPH D. BLUMENFELD

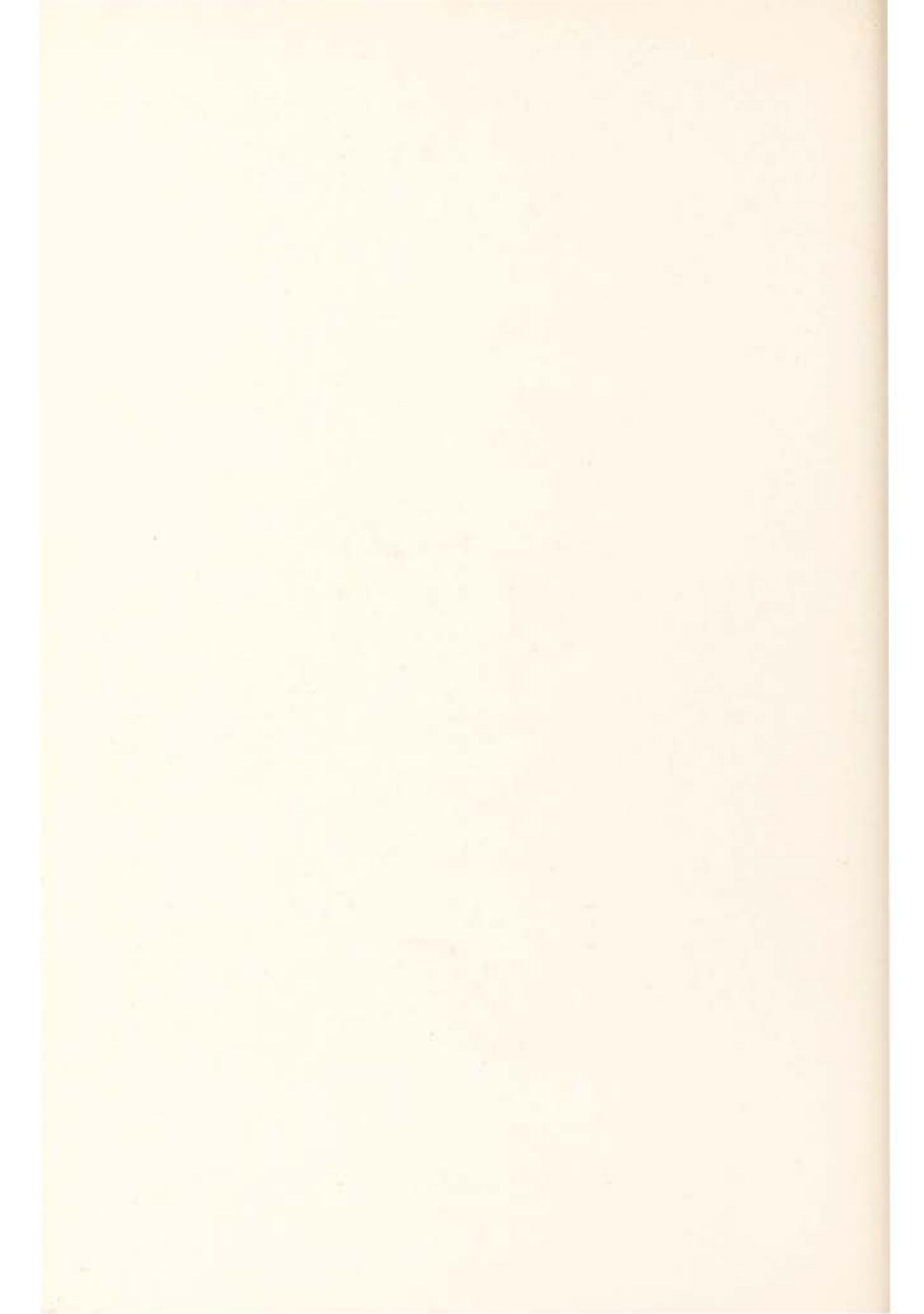
Editor of DAILY EXPRESS since 1904. Born in U.S.A., 1864; son of David Blumenfeld, American editor and newspaper proprietor. Was junior reporter on CHICAGO HERALD, 1884; Editor of MUSIC AND DRAMA, 1885; Editor of NEW YORK EVENING TELEGRAM; London Correspondent NEW YORK HERALD until 1893; News Editor DAILY MAIL, 1900-1902; and Foreign Editor of the EXPRESS in the latter year



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SOME FAMOUS  
FOUNDERS AND PROPRIETORS  
OF NEWSPAPERS



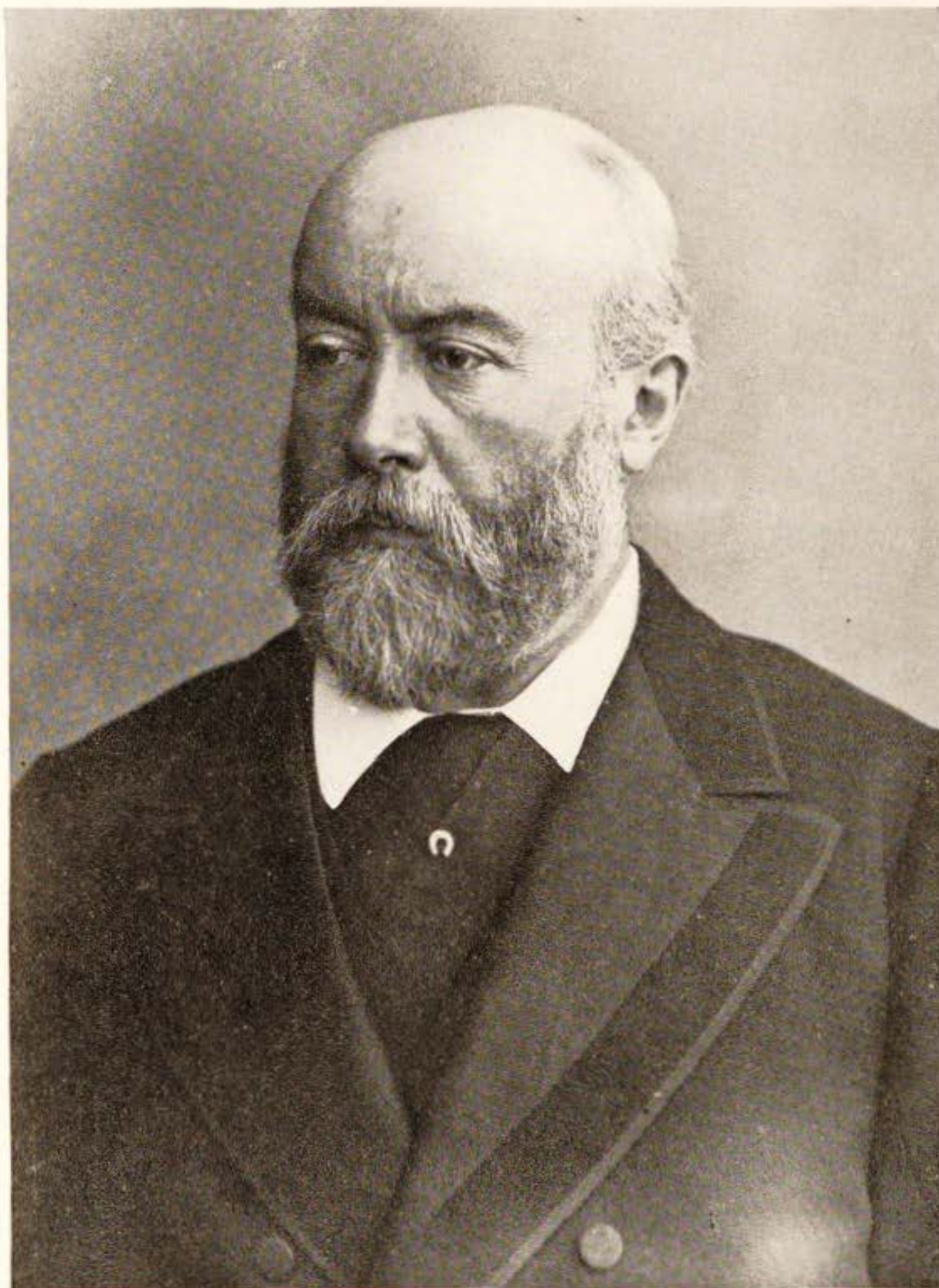




JOHN WALTER ("THE FIRST")

Born 1739. Died 1812. The first proprietor of THE TIMES. In 1780 he bought Henry Johnson's two patents for "logography," a method of using entire words or parts of words in printing. The invention itself proved unsuccessful, but the LONDON DAILY UNIVERSAL REGISTER, which he founded in 1785 to exploit it, became in 1788 THE TIMES, and has continued to grow in influence and success during its eventful history of more than 100 years





LORD GLENESK

Better known as Sir Algernon Borthwick. Born 1830. Was proprietor of the MORNING POST. Son of late Peter Borthwick, M.P. for Evesham. Was Vice Grand Master and Trustee of the Primrose League, and President of the Newspaper Press Fund. Represented South Kensington in Parliament from 1885 till 1895. Died 1908



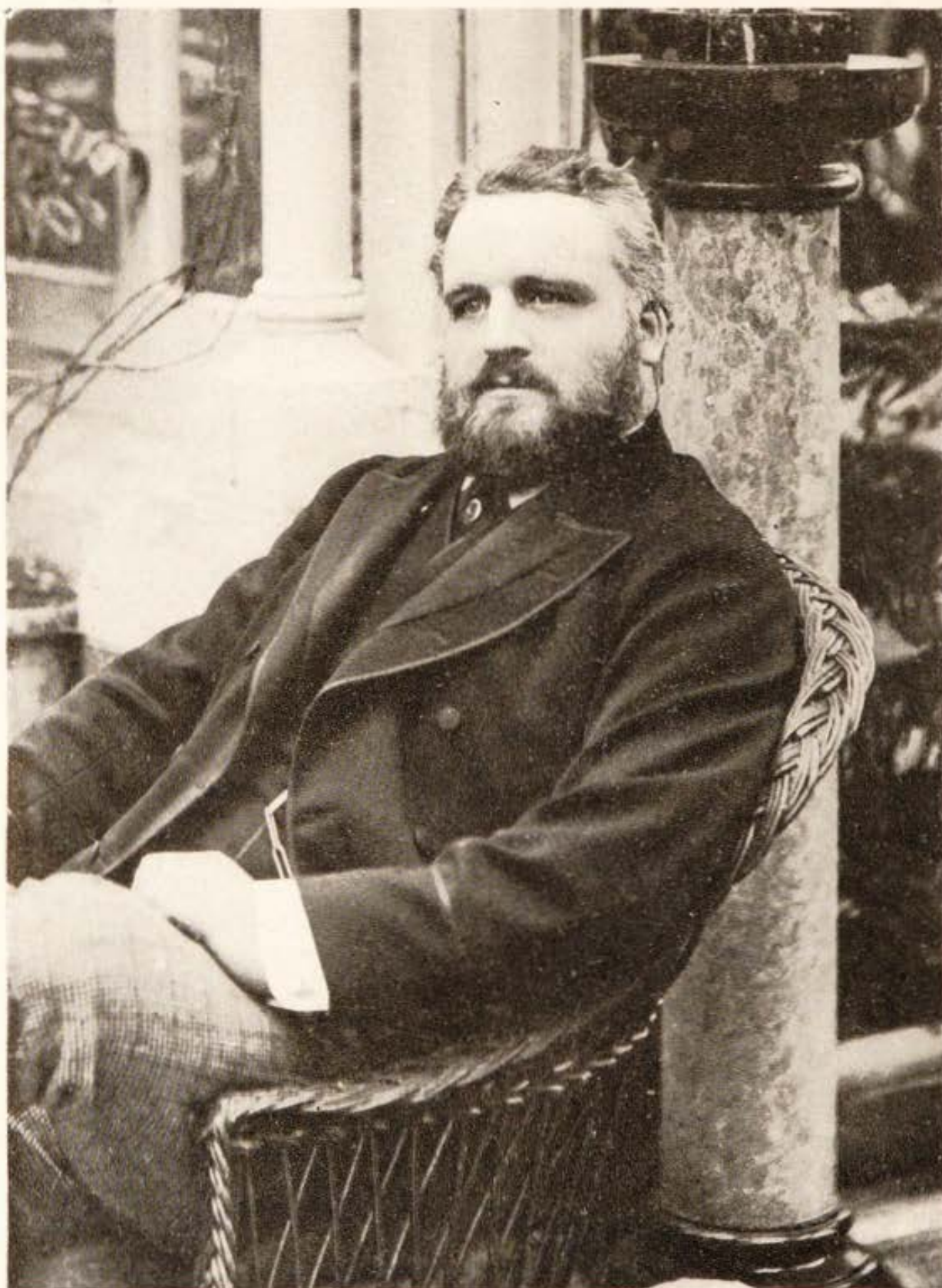


LORD BURNHAM, K.C.V.O., D.L., J.P.

*Hon. President International Press Conference, London, 1909*

Formerly Sir Edward Levy Lawson, Bart. Born 28th December, 1833. Principal proprietor of the DAILY TELEGRAPH; Lieutenant for the City of London. President of the Institute of Journalists, 1886; President of the London Press Club since 1905; and President of the Newspaper Press Fund, 1909





SIR GEORGE NEWNES, BART., M.P.

Born 13th March, 1851. Founder of George Newnes, Limited, proprietors of STRAND MAGAZINE, TIT-BITS, etc.; founder of the WESTMINSTER GAZETTE. Was M.P. for Newmarket from 1885 to 1895, and has represented Swansea town since 1900





LORD NORTHCLIFFE

*A Vice-President of the International Press Conference, 1909*

Mr. Alfred Charles Harmsworth. Born 15th July, 1865. Well known as the founder of a great number of successful popular journals and magazines, including the DAILY MAIL. He supported the Jackson-Harmsworth Arctic expedition. He was knighted in 1904, and raised to the peerage as Baron NORTHCLIFFE in the following year





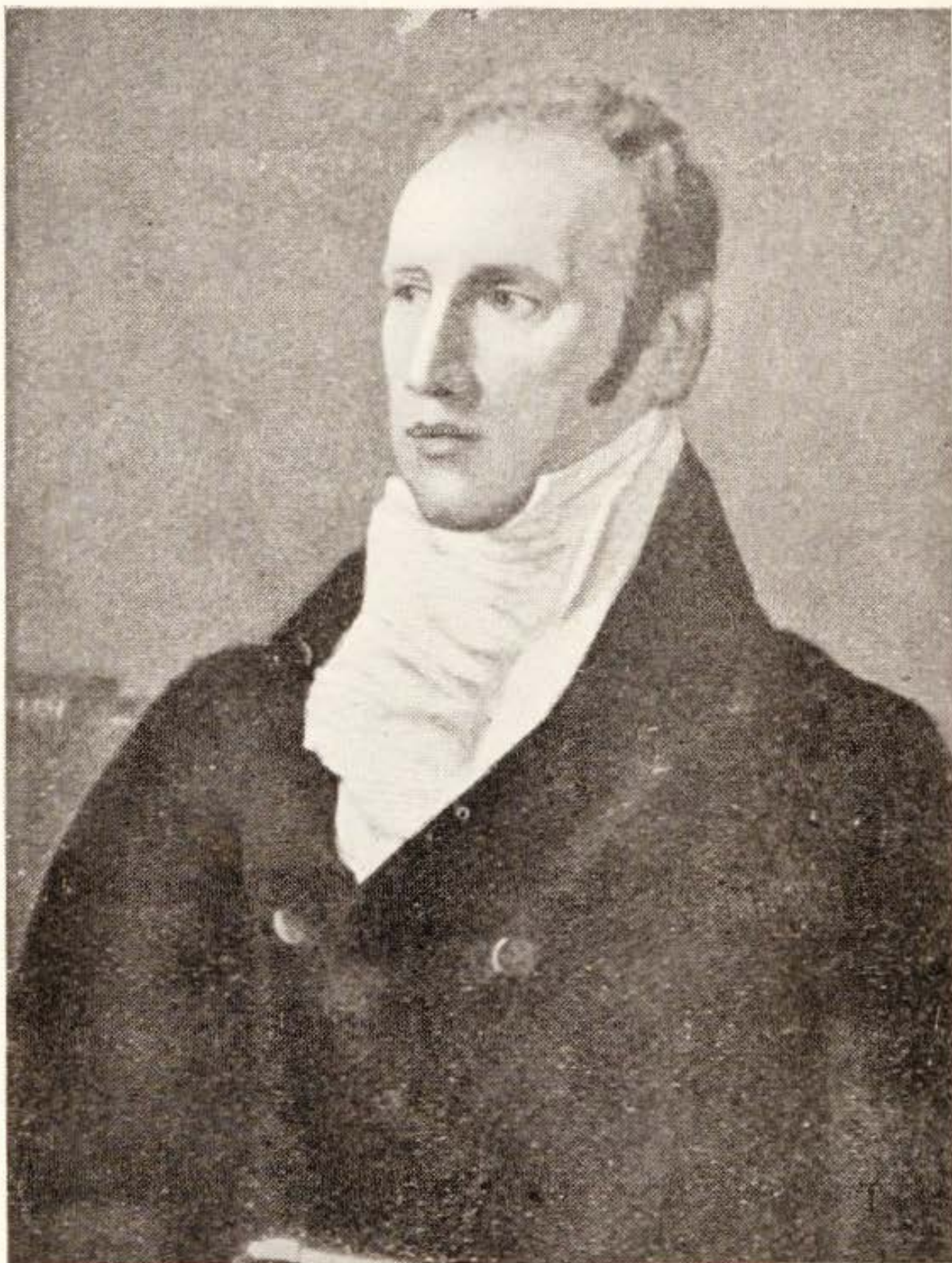
C. ARTHUR PEARSON

Principal proprietor of PEARSON'S WEEKLY, the DAILY EXPRESS, the STANDARD, and numerous periodicals. Born 24th February, 1866. After leaving Winchester he joined the staff of Sir George Newnes and rapidly rose to the position of manager; after four years he resigned and founded the great newspaper enterprises of which he is chief

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SOME NOTABLE  
LONDON CONTRIBUTORS  
TO THE  
EVOLUTION OF JOURNALISM

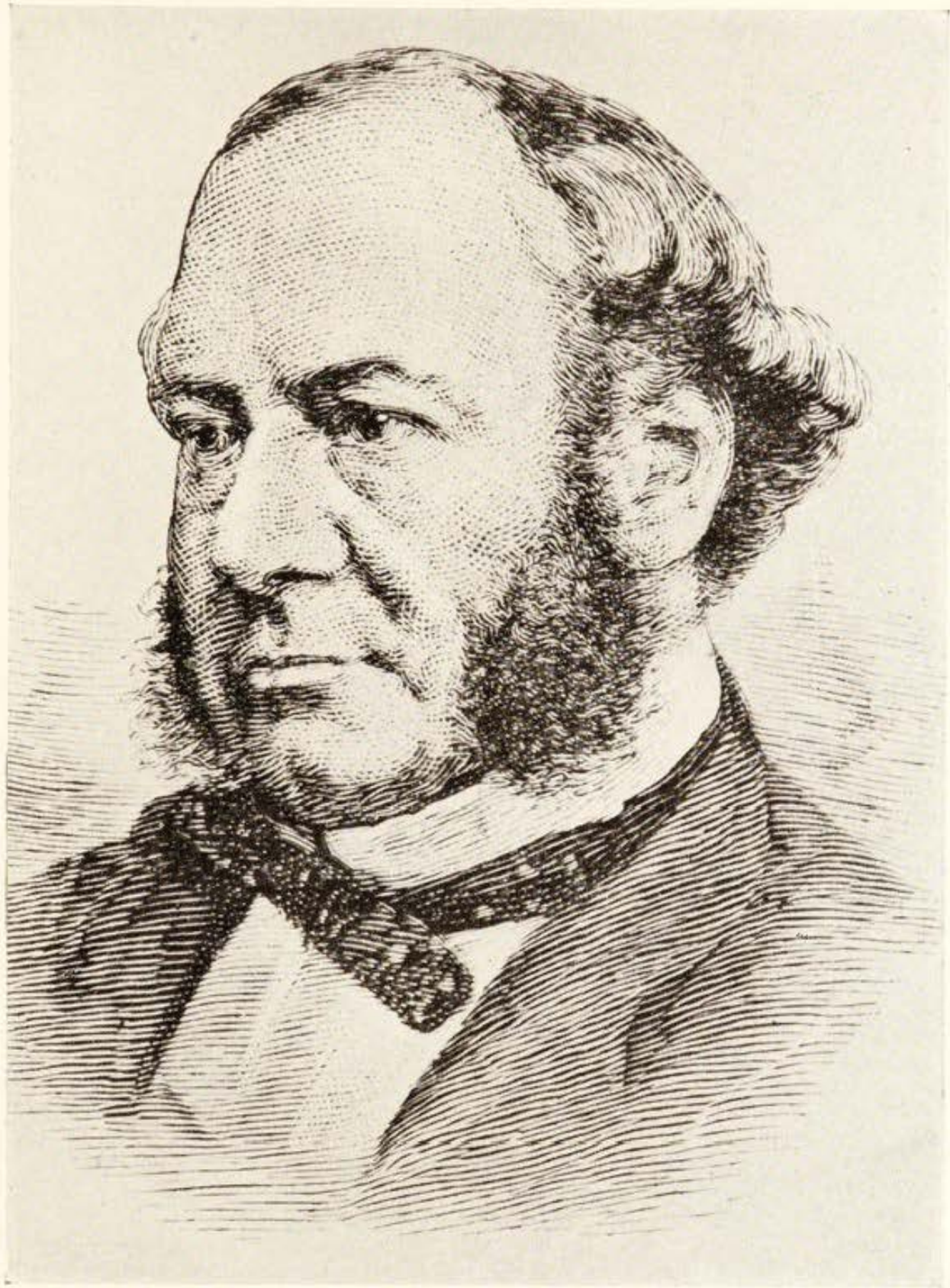




JOHN WALTER ("THE SECOND")

Born 1784. Died 1847. Son of the founder and proprietor of THE TIMES, he became the active manager of the paper in 1803, and by his exceptional talent, energy and resourcefulness greatly enhanced its importance. He organised a system for collecting accurate foreign intelligence and transmitting it rapidly to London, and in 1814, after great difficulties, he succeeded in printing THE TIMES by steam. Elected Member of Parliament for Berkshire in 1833

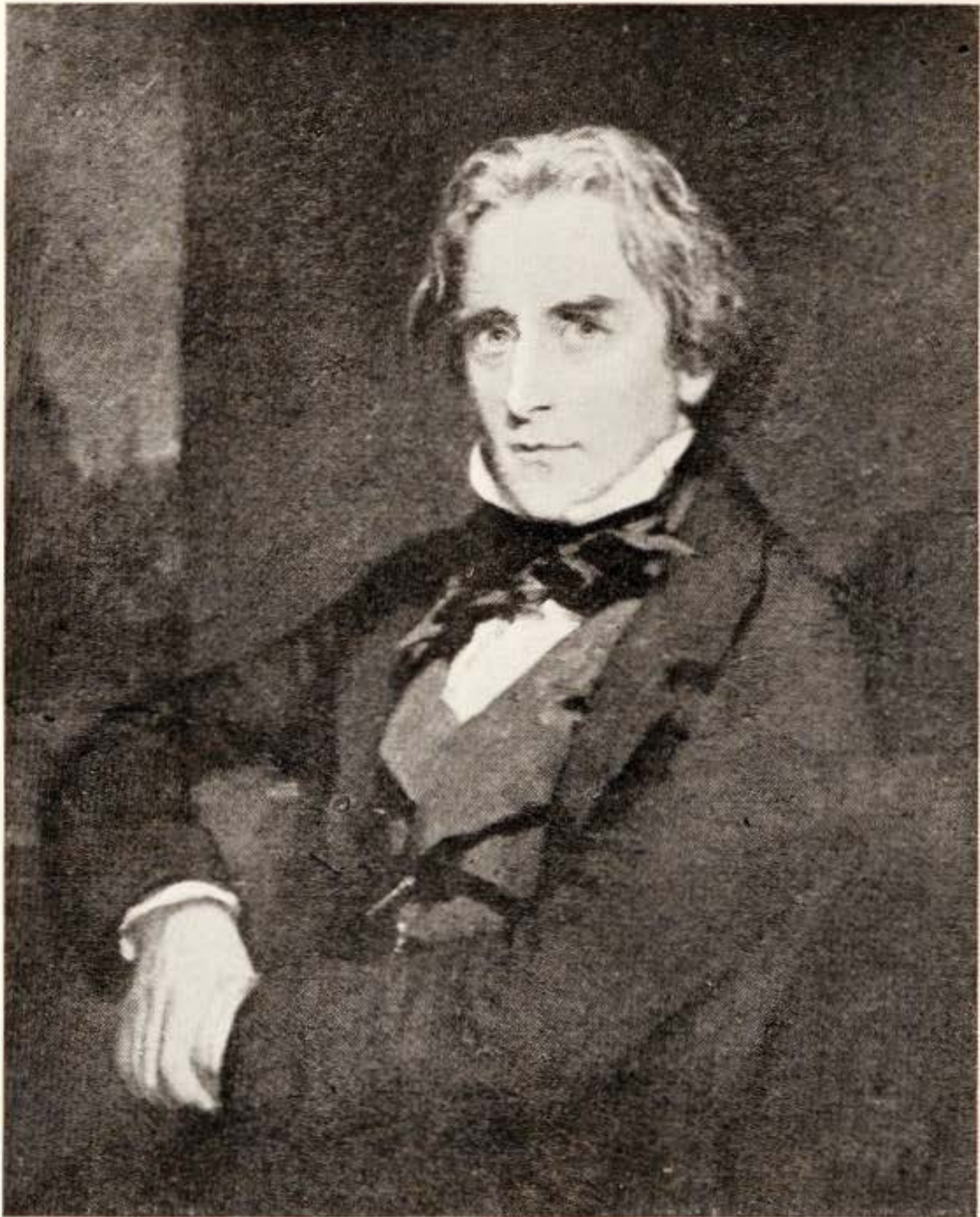




JOHN THADDEUS DELANE

A famous Editor of *THE TIMES*. Born 1817; died 1879. Educated at private schools, King's College, London, and Magdalen Hall, Oxford. In May, 1841, when not quite 24 years of age, Mr. Walter appointed him Editor of *THE TIMES*, and he retained that position for 36 years. Under his guidance the paper attained a circulation and influence till then unequalled in journalism. His outspoken criticisms of the railway mania and of the management of the Crimean War were memorable features of his time





DOUGLAS JERROLD

Journalist, Dramatic Author and Wit. Born in 1803. His father, Samuel Jerrold, was the manager of a theatre at Sheerness. As a boy he was a midshipman under Captain Austen, brother of Jane Austen the novelist. At 21 he wrote "Black-eyed Susan," and afterwards a number of highly successful comedies and melodramas. Constant contributor to PUNCH from 1841, in which journal his immortal "Candle Lectures" appeared. He was associated as dramatic critic, contributor, and Editor with a number of journals, including the SUNDAY MONITOR, the MONTHLY, NEW MONTHLY, BALLOT, ATHENÆUM, BLACKWOOD'S, the ILLUMINATED MAGAZINE, and for the last few years of his life was Editor of LLOYD'S WEEKLY NEWSPAPER. Died in 1857

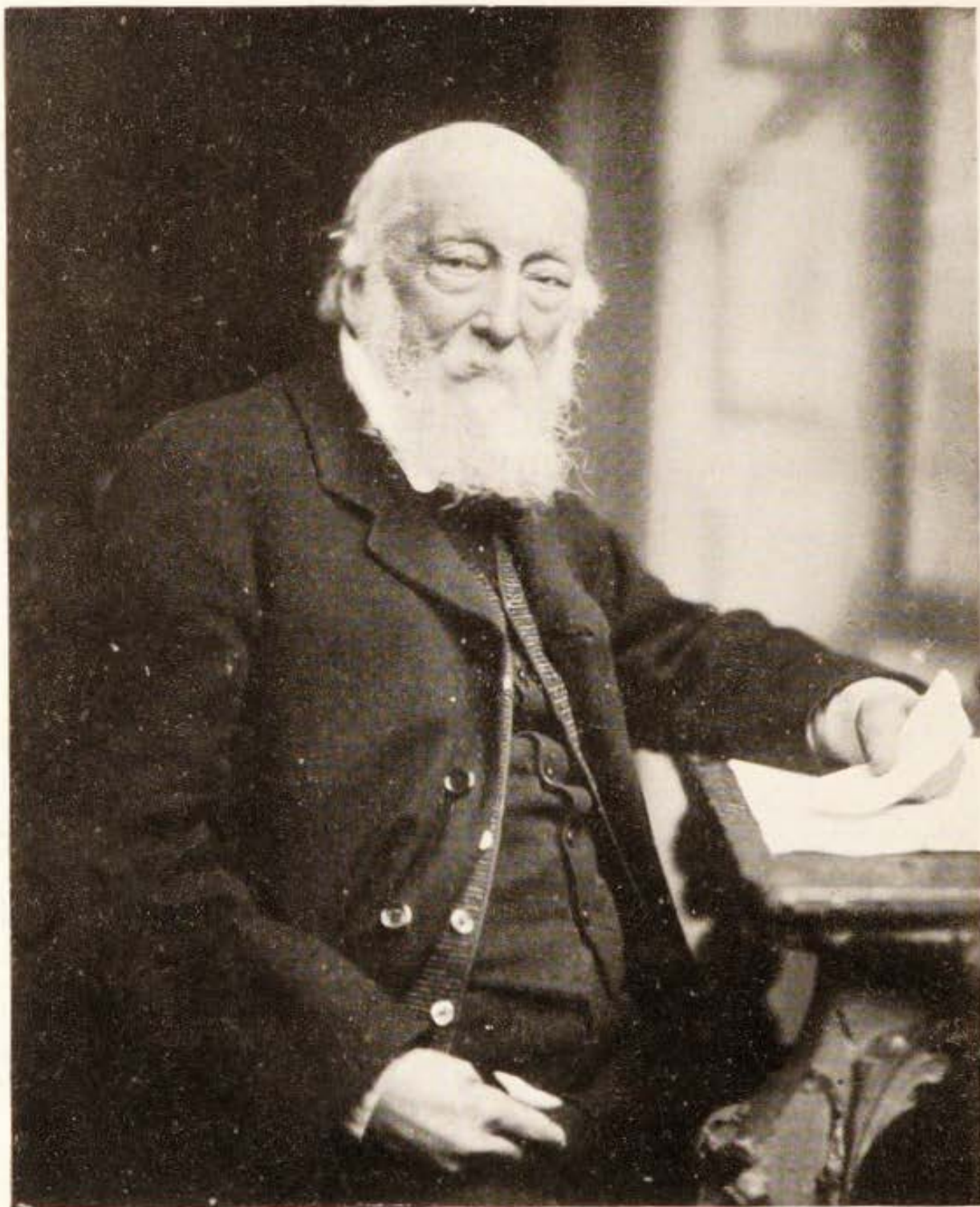




CHARLES DICKENS

Who was born in 1812, was a Journalist as well as a Novelist. He began his writing career as a reporter for the **MORNING CHRONICLE**, and contributed some of his early papers and sketches to the pages of the **EVENING CHRONICLE** and the **MONTHLY MAGAZINE**. In after years he became the first Editor of the **DAILY NEWS**, and, for a longer period, of **HOUSEHOLD WORDS** and **ALL THE YEAR ROUND**. Author of **PICKWICK PAPERS**, **DAVID COPPERFIELD**, and many other world-famed novels





WILLIAM B. TEGETMEIER

Veteran naturalist and journalist, born at Colnbrook, Bucks, 1816, his father was a Royal Navy surgeon. Was educated for the Medical Profession. Lecturer at Government Training College, made a special study of variation in animals, working for many years with Darwin; demonstrated the primary circular form of the bee's cell, is one of the highest authorities on bird and animal life; lecturer Zoological Society; on staff of FIELD for 50 years, has written 1,100 consecutive articles for the QUEEN; one of first secretaries Savage Club; contributor to ENCYCLOPEDIA BRITANNICA; author of THE POULTRY BOOK; PIGEONS; TABLE AND MARKET POULTRY; THE HOMING PIGEON; NATURAL HISTORY OF THE CRANES; PALLAS' SAND GROUSE, 1888; PHEASANTS, 4th Edition, 1904; HORSES, ZEBRAS, AND MULE BREEDING, 1895; THE HOUSE SPARROW, 1899.

William B. Tegetmeier, Writer, Queen, Encyclopedia Britannica, The Poultry Book, Pigeons, Table and Market Poultry, The Homing Pigeon, Natural History of the Cranes, Pallas Sand Grouse, 1888, Pheasants, Horses, Zebras, Mule Breeding, The House Sparrow

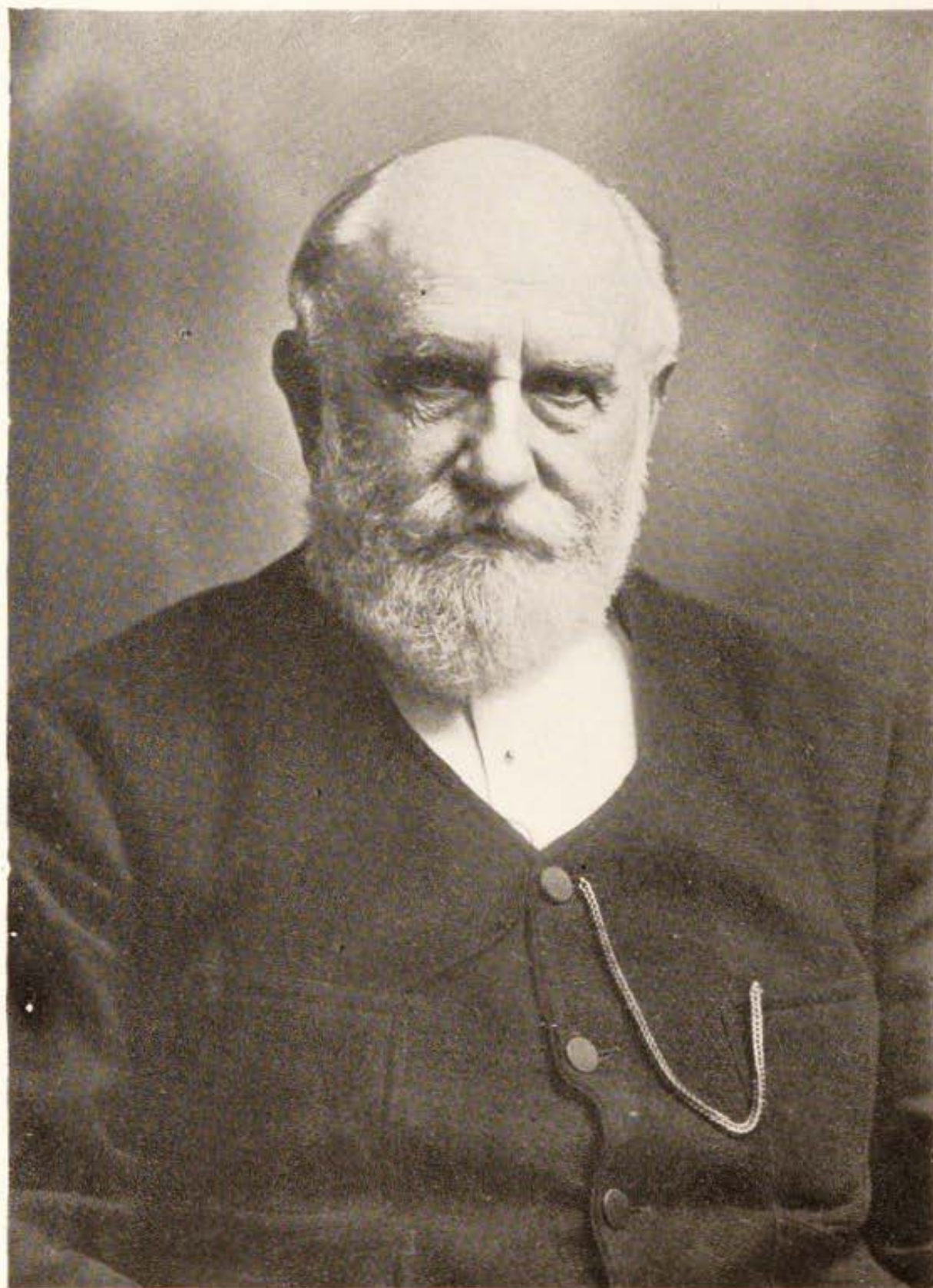




SIR JOHN TENNIEL, R.I.

Veteran PUNCH cartoonist. Born 1820; created a Knight, 1893. Doyen of journal artists, having been actively engaged on the staff of PUNCH for fifty years: he joined in 1851 and retired in 1901. Besides innumerable political cartoons in PUNCH, he has illustrated LALLA ROOKH, THE INGOLDSBY LEGENDS, ALICE IN WONDERLAND, ALICE THROUGH THE LOOKING-GLASS, etc., etc.





### HARRISON WEIR

Painter and Illustrator—bird and animal subjects; Author and Journalist. Born 1824. First exhibited at British Institution, 1843; afterwards at Royal Academy, etc. Was on the staffs of ILLUSTRATED LONDON NEWS, FIELD, PICTORIAL TIMES, PICTORIAL WORLD, GRAPHIC, BLACK AND WHITE, POULTRY, etc. Wrote and illustrated OUR POULTRY, AND ALL ABOUT THEM (the work of twenty years). Died 1900

Harrison Weir, Illustrator, Illustrated London News, Field, Pictorial Times, Pictorial World, Graphic, Black and White, Poultry, etc., Our Poultry, All About Them





GEORGE AUGUSTUS SALA

Journalist and Novelist; of Italian descent, was born in London 24th November, 1828. Became a contributor to HOUSEHOLD WORDS in 1851, and afterwards to the WELCOME GUEST, the ILLUSTRATED LONDON NEWS, and the CORNHILL MAGAZINE. Founded and edited TEMPLE BAR, 1860-66. Special Correspondent for the DAILY TELEGRAPH during the American Civil War, in Italy with Garibaldi, and in France 1870-71. Died 1895.

George Augustus Sala, Contributor, Welcome Guest, Illustrated London News, Cornhill Magazine,; Editor, Temple Bar, Correspondent, The Daily Telegraph





JOSEPH HATTON

Journalist and Author ; born 3rd February, 1841. Educated at Bowker's, Chesterfield, and by private tutors. Came to London in 1868 to conduct THE GENTLEMAN'S MAGAZINE ; for years Special Correspondent in Europe of the NEW YORK TIMES and SYDNEY MORNING HERALD ; represented the STANDARD on special mission to America ; edited SUNDAY TIMES and THE PEOPLE, in which latter paper he published his well-known series of "Cigarette Papers."

Author of a number of successful novels and plays. Died in 1907

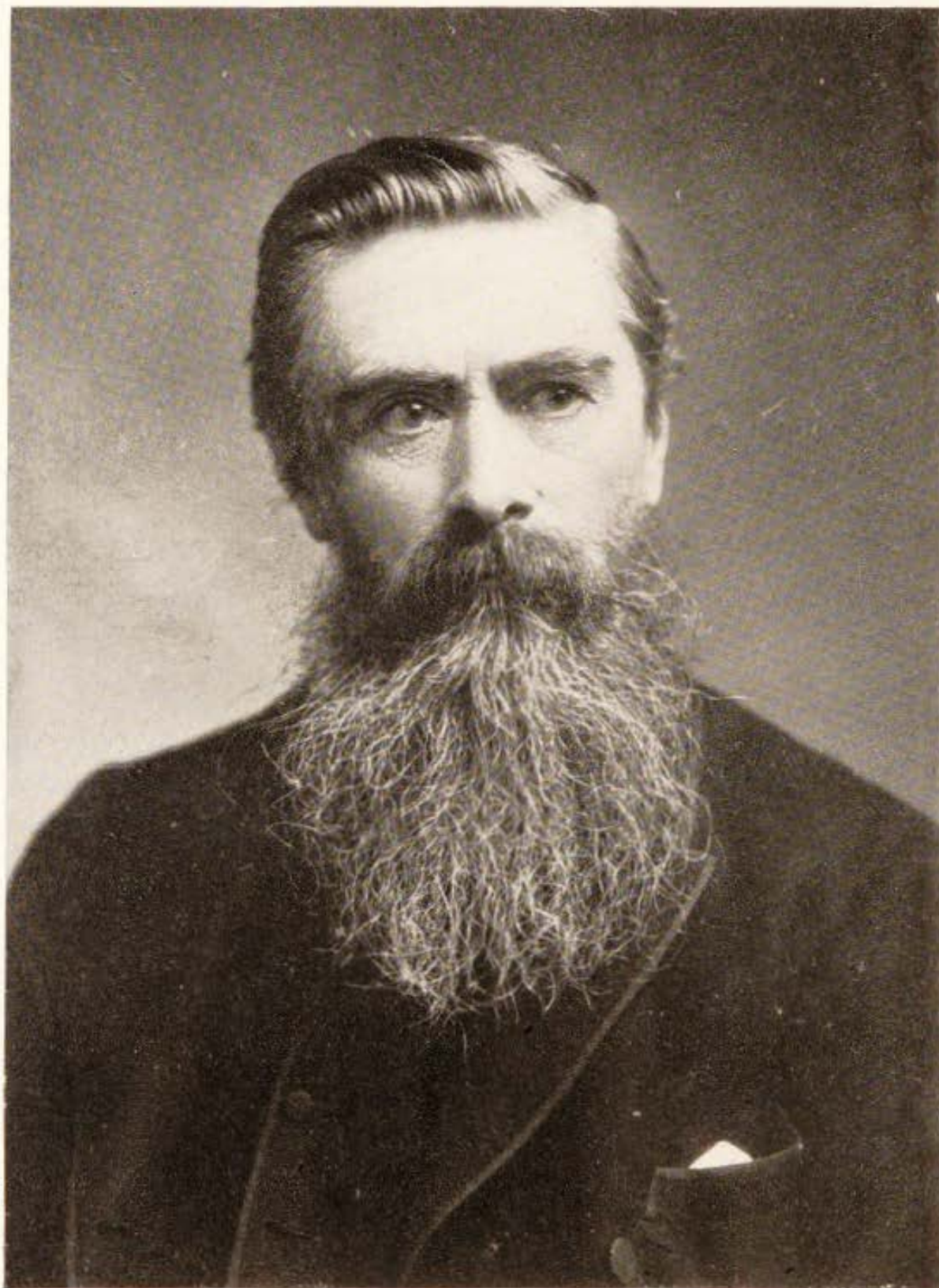




JUSTIN MCCARTHY, F.J.I.

Journalist, Novelist, Historian and Politician. Born 1830. Early journalistic career passed in Cork, 1848-52, Liverpool, 1852-60, London, 1880; Editor of MORNING STAR, 1864-68; and leader writer for the DAILY NEWS from 1870. Entered Parliament in 1879, and led the Irish Party, 1890-1896. Author of many novels and historical works, including the HISTORY OF OUR OWN TIMES





GEORGE MANVILLE FENN

Writer of boys' stories. Born 1831. First wrote for CHAMBERS' JOURNAL and ALL THE YEAR ROUND; later, became Editor of CASSELL'S MAGAZINE and Editor and proprietor of ONCE A WEEK. Wrote more than a hundred novels and over a thousand short stories. Died 1909



RIGHT HON. HENRY LABOUCHERE, P.C.

Journalist; proprietor of TRUTH. Born in London, 1831; eldest son of John Labouchere, Broome Hall, Surrey. Educated at Eton. In the Diplomatic Service, 1854-1864, serving at Washington, Munich, Stockholm, St. Petersburg, etc. In 1866 entered Parliament, where he has represented successively Windsor, Middlesex and Northampton





EDMUND YATES,

Journalist and Novelist. Born Edinburgh, 1831. He went into the Civil Service, but in 1854 turned his attention to literature, writing many novels, etc. Later he became Editor of TEMPLE BAR, TINSLEY'S MAGAZINE, and other periodicals; but his principal achievement was the founding, in conjunction with Grenville Murray, in 1874, of the Society weekly, THE WORLD, which he edited for many years. Died 1894





SIR EDWIN ARNOLD, K.C.I.E., C.S.I.

Journalist, Poet, *Littérateur*. Born 10th June, 1832. Educated at Rochester, King's College, London, and University College, Oxford. Won the Newdigate Prize 1853. Was appointed Principal of the Sanscrit College at Poona, India. Joined the staff of the DAILY TELEGRAPH in 1861 and continued to be associated with that journal. Died in 1904. Author of *THE LIGHT OF ASIA* and numerous other works

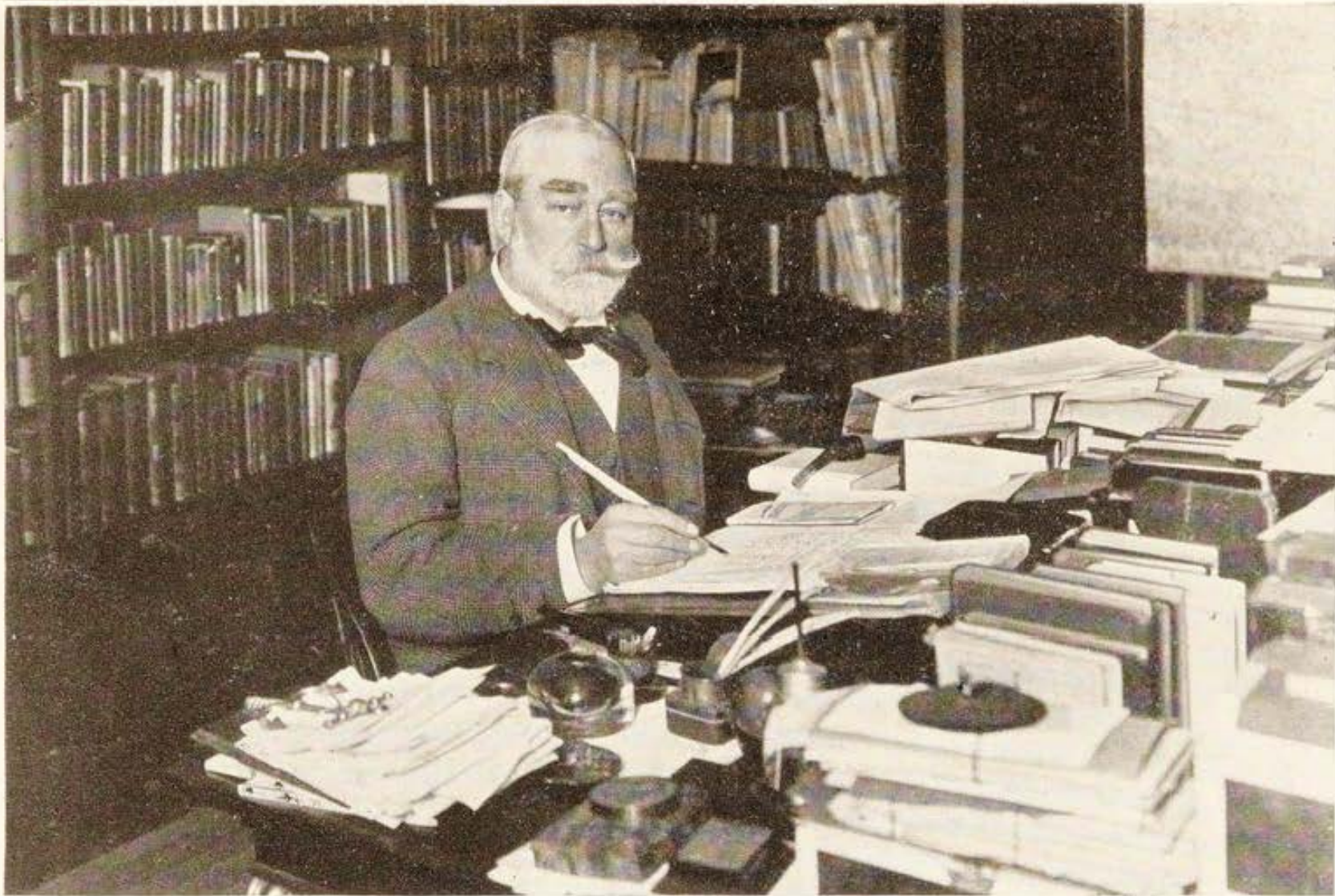




SIR EDWARD RUSSELL, K.T., F.J.I.

Editor of the LIVERPOOL DAILY POST since 1869. Born 1834. Became Assistant Editor of the Post, 1860; leader writer and dramatic critic for MORNING STAR, London, 1866. Represented Glasgow in Parliament, 1885-87. Has written his reminiscences and published many pamphlets. Treasurer of the Newspaper Press Fund. Former President of the Institute of Journalists





SIR FRANCIS COWLEY BURNAND, KT.

Editor of PUNCH, 1880-1906. Born 29th November, 1836. Educated at Eton and Trinity College, Cambridge. Commenced literary career at age of fifteen by writing a farce, which was produced at Theatre Royal, Worthing. Founder of the A. D. C., Cambridge. He was associated with H. J. Byron in founding FUN, but at 25 began writing for PUNCH, and in 1880 became Editor.

Has written over 120 plays, chiefly burlesques and light comedies. Knighted in 1902





EDWARD JOHN GOODMAN

Journalist, Novelist and Dramatist. Born 1836. Entered journalism, 1857, gaining experience on the editorial staffs of the London Daily Guide, EDINBURGH COURANT, CENTRAL PRESS, MANCHESTER COURIER, YORKSHIRE POST, and for many years was on the staff of the London Daily Telegraph. Hon. Secretary of the Savage Club, 1879-86

Edward John Goodman, Writer, London Daily Guide, Edinburgh Courant, Central Press, Manchester Courier, Yorkshire Post, London Daily Telegraph; Secretary, Savage Club





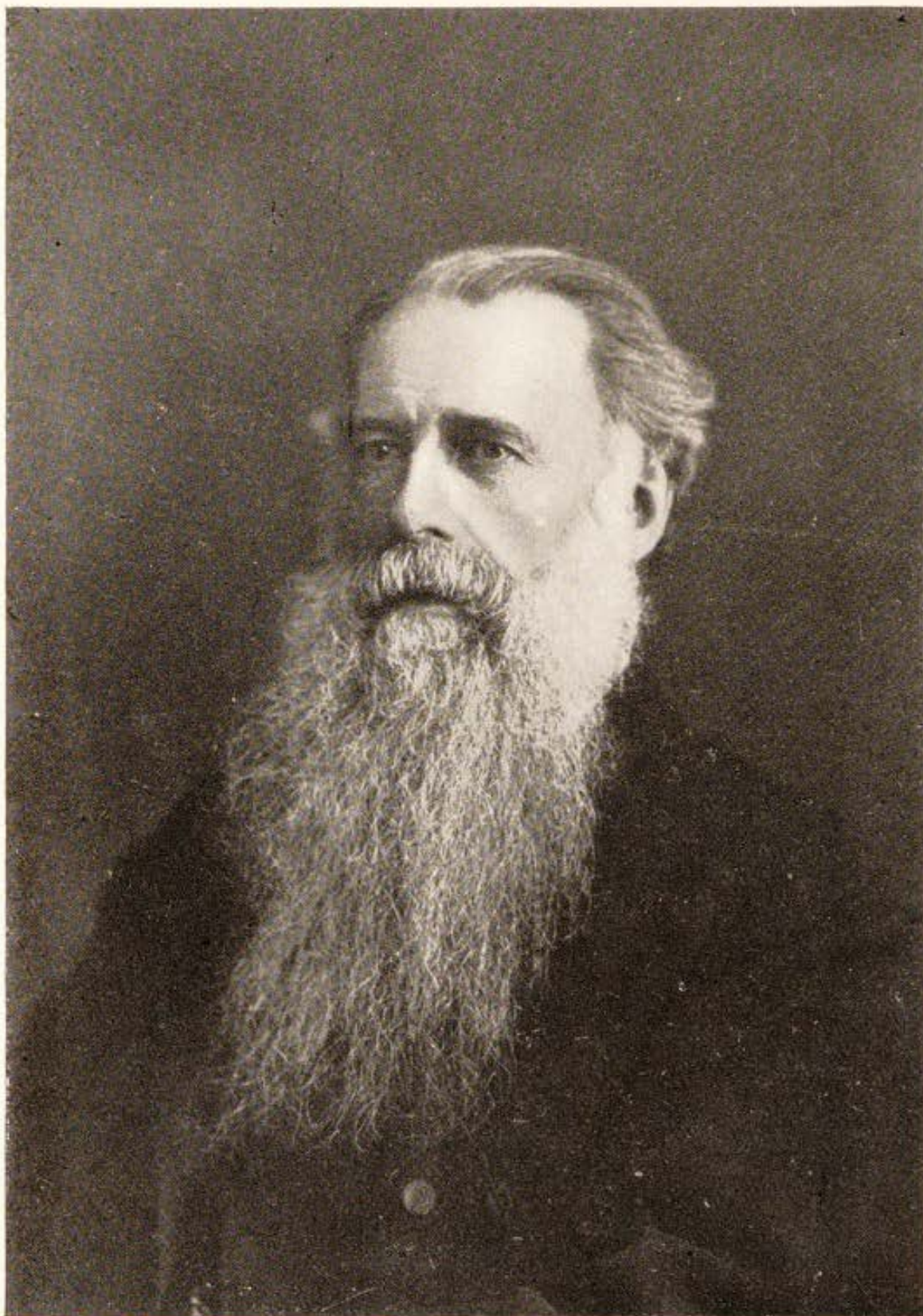
SIR HUGH GILZEAN REID, KT., LL.D., J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

Chief founder and first President of the Institute of Journalists and a promoter of the International Press Congress, founded in Belgium, 1894. Born 1838. After conducting papers in Peterhead, 1856, and Edinburgh, 1859, became the pioneer of daily and weekly newspapers in the provinces, founding the NORTH-EASTERN DAILY GAZETTE, the first existing halfpenny evening paper in the kingdom, and a series of journals in Yorkshire, Lancashire, the Midlands and London. M.P. for Aston Manor in 1886. President of Society of Newspaper Proprietors and Managers, 1898-99.

Sir Hugh Gilzean Reid, Vice-president, International Press Conference, 1909; Chief founder and first President, Institute of Journalist; Promoter, International Press Congress (Belgium, 1894); Founder, North-Eastern Daily Gazette; President, Society of Newspaper Proprietors and Managers, 1898-99





THOMAS CATLING

Veteran Journalist. Born at Cambridge 23rd September, 1838. Educated at private schools and Working Men's College, London. Worked for twelve years in the composing-room of LLOYD'S WEEKLY NEWS; Sub-Editor, 1866; Editor, 1884; retired 1907. Now writing his reminiscences of 53 years on LLOYD'S NEWSPAPER. Has travelled through America and Canada, Syria and the Holy Land, Africa, Austria, Dalmatia, Bosnia and Herzegovina. Delegate to Conference of International Association of Journalists at Berlin in 1908





LORD MORLEY, P.C., O.M., M.A., F.R.S.,  
LL.D., D.C.L.

Viscount Morley. Journalist, Biographer, Critic and Statesman. Born 1838. Educated Cheltenham and Oxford, and called to the Bar, 1873. Editor of the FORTNIGHTLY REVIEW, 1867-1882, and of the PALL MALL GAZETTE, 1880-1883. M.P. for Newcastle-on-Tyne, 1883; Chief Secretary for Ireland, 1886 and 1892-95; Secretary for India, 1905. Created Viscount, 1908. Author of studies of Burke, Voltaire, Cobden, etc., and biographer of Gladstone.

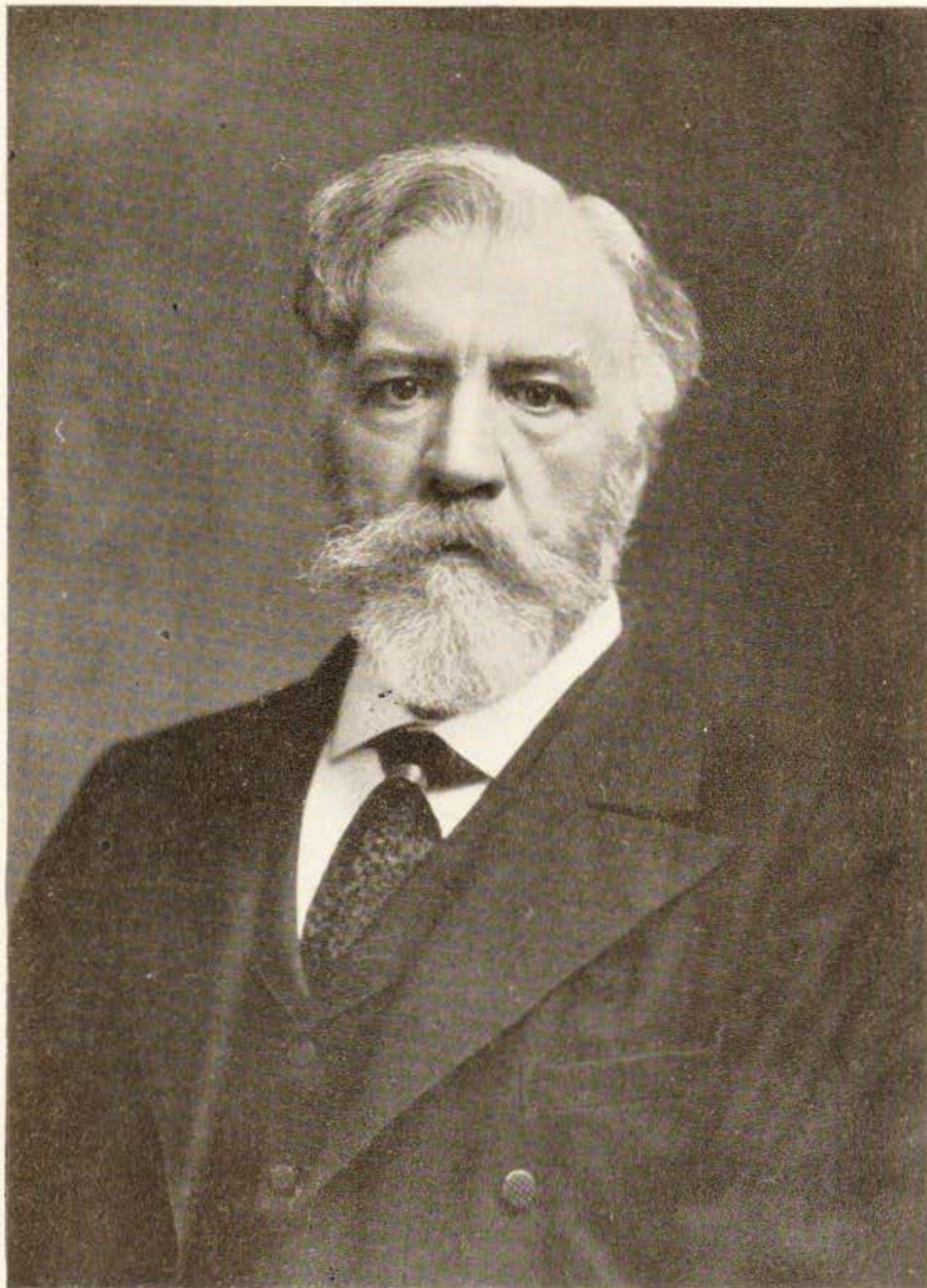




WILLIAM SENIOR, F.J.I.

Editor of the FIELD since 1900. Born 1838. Entered journalism in 1858, and joined DAILY NEWS staff in 1866, acting for over a quarter of a century as its Special Correspondent; Angling Editor of FIELD, 1883, well known under his angling nom de plume "Red Spinner." Author of books on travel and sport. Celebrated last year the jubilee of his professional career





RICHARD WHITEING

Journalist and Author. Born 1840. Inaugurated his journalistic career by writing for the EVENING STAR, 1866; later, on staffs of MORNING STAR, PRESS ASSOCIATION, MANCHESTER GUARDIAN, WORLD (London), WORLD (New York), and DAILY NEWS. Author of several popular novels, including NO. 5 JOHN STREET





SIR DOUGLAS STRAIGHT, KT., LL.D., F.J.I.

For some thirteen years Editor of the PALL MALL GAZETTE; Hon. Treasurer Newspaper Society. Born in London, 22nd October, 1844; son of Robert Marshall Straight, barrister. Educated at Harrow. Engaged in newspaper and magazine work till 1865, when called to the Bar, and became a very successful advocate. M.P. for Shrewsbury, 1870-1874. Judge of the High Court of Judicature at Allahabad from 1879 until 1892, in which year he was Knighted





SIR F. C. GOULD, K.T., J.P., F.J.I.

Caricaturist and Journalist. Assistant Editor WESTMINSTER GAZETTE. Born at Barnstaple, 1844. Created a Knight 1906. Educated at private schools. For many years on London Stock Exchange. Illustrated a series of Christmas Numbers for TRUTH, and was a frequent contributor to the PALL MALL GAZETTE





EDWARD LINLEY SAMBOURNE

Journalistic Artist and Designer. Born London, 4th January, 1845. Educated at City of London School and Chester College. Apprenticed in the Marine Engineering Works of John Penn & Son, Greenwich. Began to contribute to PUNCH in 1867, under Editorship of Mark Lemon. Succeeded Sir John Tenniel as principal cartoonist in 1901





SIR HENRY W. LUCY, J.P.

"Toby M.P." of PUNCH. Born 1845. Chief Reporter of the SHREWSBURY CHRONICLE, 1864; on the PALL MALL GAZETTE, 1870; appointed Chief of Gallery Staff of the DAILY NEWS in 1873; Editor in 1886, but resigned and returned to Press Gallery, 1887. Joined staff of PUNCH, 1881. Knighted 1909





EDMUND ROBBINS

Manager of the PRESS ASSOCIATION since 1880. Born 1847. Commenced work on the LAUNCESTON WEEKLY NEWS, 1858, and in 1865 went to the CENTRAL PRESS AGENCY; Sub-Editor PRESS ASSOCIATION on its foundation in 1870, and was thereafter continuously advanced. Secretary of the Provincial Newspaper Society 1870-1881

Edmund Robbins, Manager, Press Association; Journalist, Launceston Weekly News, Central Press Agency; Sub-Editor, Press Association; Secretary, Provincial Newspaper Society





GEORGE R. SIMS, F.J.I.

"Dagonet" of the REFEE. Born in 1847. He has written continuously for the Press and the stage since 1874. His peculiar knowledge of London life has been strikingly presented in many of his writings, and over a score of plays. Author of a number of popular novels. DORCAS DENE; MEMOIRS OF A LANDLADY, etc.





SIR JOSEPH LAWRENCE, J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

Born 23rd September, 1848. Chairman of Linotype and Machinery, Ltd. Commissioner of Lieutenancy for City of London. Member of Surrey County Council; was one of the principal and earliest pioneers of the Manchester Ship Canal. Member of Parliament for Monmouth Boroughs, 1901-1906



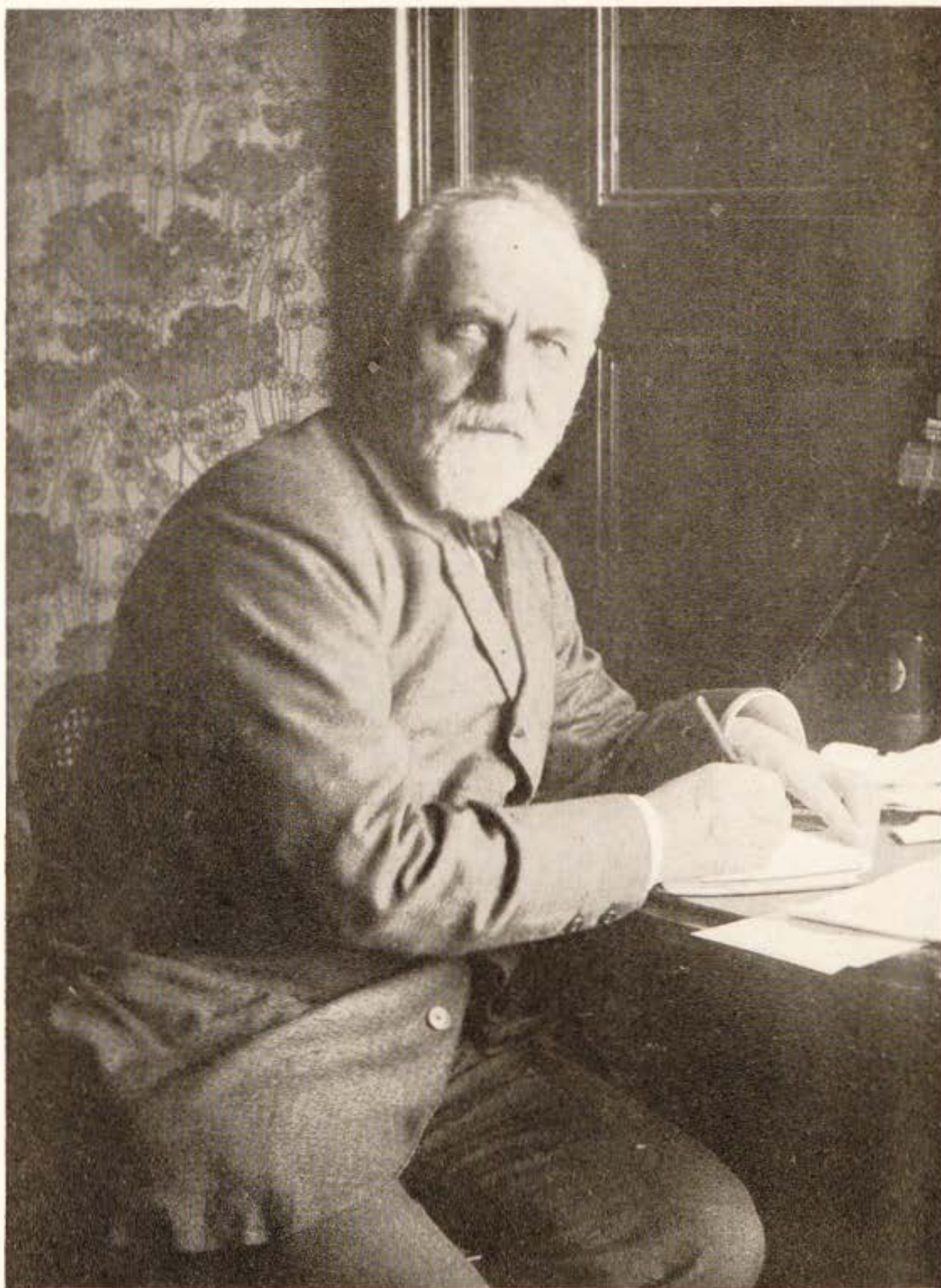


T. P. O'CONNOR, M.A., M.P., F.J.I

Representative in Parliament of Liverpool (Scotland Division) since 1885. Born in Athlone, 1848. Was Reporter on SAUNDERS' NEWSLETTER, Dublin, 1867; Sub-Editor on DAILY TELEGRAPH, 1870; later, on NEW YORK HERALD (London). Founded and was first Editor of the STAR, SUN, WEEKLY SUN, M.A.P., P.T.O., and T.P.'S WEEKLY. First entered Parliament as Member for Galway, 1880. Author of several biographical and historical works.

T.P. O'Connor, Reporter, Saunders' Newsletter, Dublin; Sub-editor, Daily Telegraph, New York Herald (London); Founded and Editor, Star, Sun, Weekly Sun, M.A.P., T.T.O., T.P. Weekly; MP





### W. T. STEAD

Editor of the REVIEW OF REVIEWS and the MASTERPIECE LIBRARY. Born in 1849. Was Editor of the NORTHERN ECHO, Darlington, from 1871 till 1880; Editor of the PALL MALL GAZETTE, 1883-89. Founded the REVIEW OF REVIEWS, 1890; the AMERICAN REVIEW OF REVIEWS, 1891; AUSTRALASIAN REVIEW OF REVIEWS, 1894; commenced the MASTERPIECE LIBRARY of Penny Poets, Novels and Prose Classics in 1895. Has issued numerous characteristic publications dealing with public events since 1884.

W.T. Stead, Editor, Review of Reviews, Masterpiece Library; Editor, Northern Echo; Editor, Pall Mall Gazette; Founder, Review of Reviews, Australian Review of Reviews; commenced Masterpiece Library of Penny Poets, Novels and Prose Classics; [Author, The Last Will and Testament of Cecil J. Rhodes, 1902]





W. L. COURTNEY, M.A., LL.D. F.J.I.

Born in 1850. Became Editor of MURRAY'S MAGAZINE and the FORTNIGHTLY REVIEW in 1894 ; is on the staff of the DAILY TELEGRAPH, and a director of the publishing firm of Chapman and Hall. He was Headmaster of Somersetshire College, Bath, in 1873, and has written many interesting essays

W.L. Courtney, Editor, Murray's Magazine, Fortnightly Review' Staff, Daily Telegraph; Director Chapman and Hall; Headmaster, Somerset College, Bath





EDWARD EDEN PEACOCK, F.J.I.

Manager of the MORNING POST. Managing Director of the East of England Newspaper Company. Hon. Secretary of the Savage Club. Born 1850. Educated at King's College, London

Edward Eden Peacock, Manager, Morning Post; Managing Director, East of England Newspaper Company; Secretary, Savage Club





MAJOR G. F. GRATWICKE, V.D., R.W.O., F.J.I.  
*President, and Chairman of the Executive, International Press  
 Conference, 1909*

President of the British International Association of Journalists, 1906-9. Journalist; Managing Director DEVON AND EXETER DAILY GAZETTE. Born 1850. Sheriff of Exeter, 1900; President of the Institute of Journalists, 1905-6, and Founder of its Orphan Fund; on Committee of Newspaper Society; retired Major 4th V.B. Devonshire Regiment; famous shot. Delegate to the International Congresses of the Press at Antwerp, Bordeaux and Rome, and of the World's Press Congress at St. Louis





LORD MILNER, G.C.B., G.C.M.G.

High Commissioner for South Africa, 1897-1905. Barrister, Inner Temple, 1881. Engaged mainly in journalism from 1882 to 1885 (PALL MALL GAZETTE and other journals). Private Secretary to Chancellor of Exchequer, 1887-89. Under Secretary for Finance in Egypt, with Lord Cromer, 1889-1902. Governor of Transvaal and Orange River Colony, 1901-5

Lord Milner, High Commisioner, South Africa (1897-1905); Barrister, Inner Temple (1851); Staff, Pall Mall Gazette; Private Secretary, Chancellor of Exchequer (1887-1889); Under Secretary for Finance in Egypt with Lord Cromer (1889-1902); Governor of Transvaal and Orange River Colony (1901-1905)

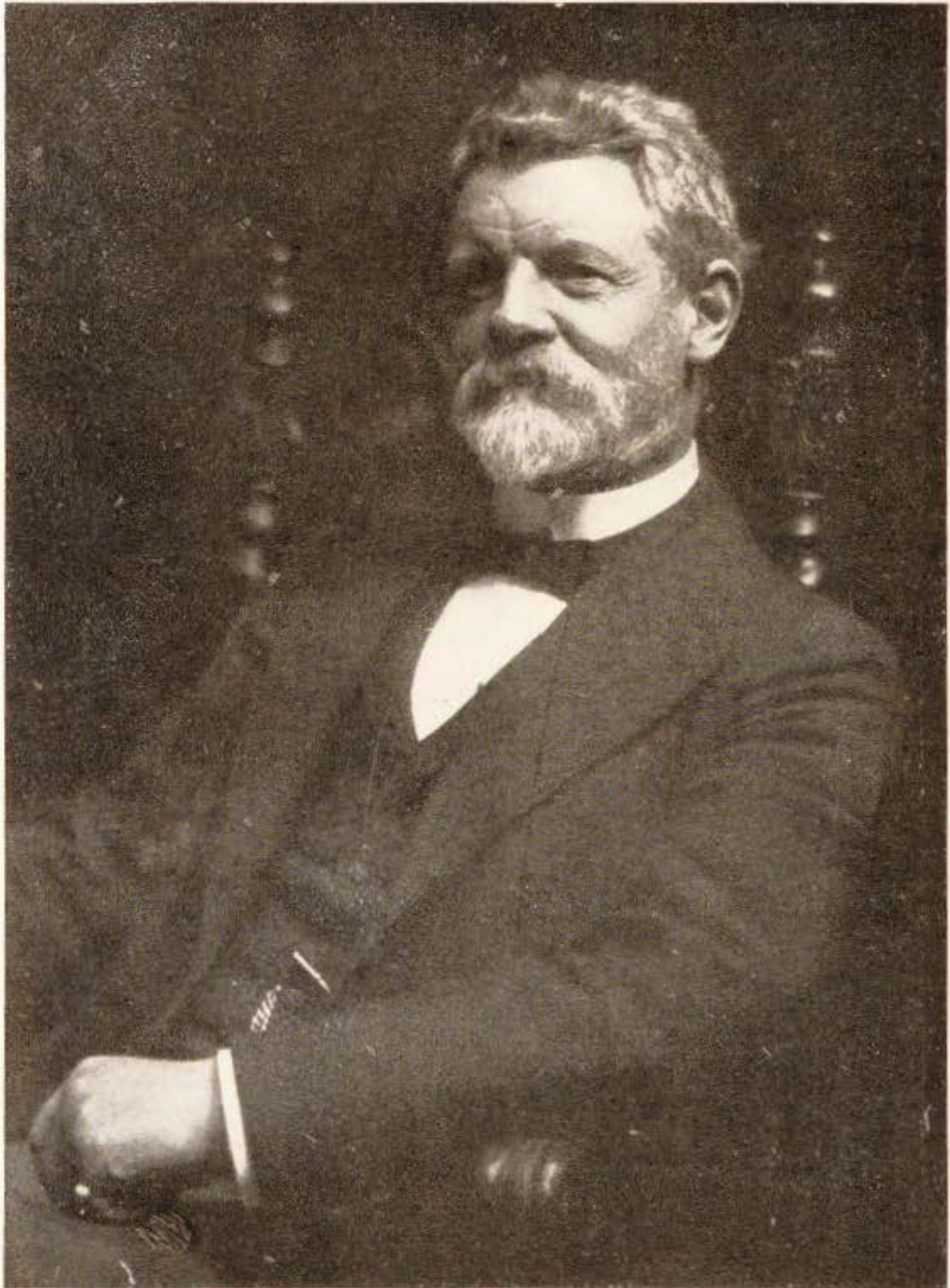




HARRY FURNISS

Caricature Artist and Journalist. Born Wexford, 1854. Settled in London at the age of nineteen. Has been for many years a contributor to the ILLUSTRATED LONDON NEWS, GRAPHIC, BLACK AND WHITE, and principal magazines. Joined staff of PUNCH in 1880. Has toured United States of America, Canada, Australia, etc., as humorous lecturer. Founder of LIKA JOKO and NEW BUDGET, and author of a number of illustrated books





ALDERMAN S. S. CAMPION, J.P., F.J.I.

*A Vice-President of the International Press Conference, 1909*

President of the Institute of Journalists, 1908-9; President of the British International Association of Journalists, 1902-6. Part proprietor of the NORTHAMPTON MERCURY and allied publications. Was largely instrumental in founding the Provident Fund of the Institute of Journalists, and was its first Treasurer

Alderman S.S. Campion, Vice-President, International Press Conference, 1909; President, British International Association of Journalists; Proprietor, Northampton Mercury; Founder, Treasurer, Provident Fund, Institute of Journalist





FRANK LLOYD, F.J.I.

*A Vice-President of the International Press Conference, 1909*

A Director in the firm of Edward Lloyd, Ltd., and associated with the DAILY CHRONICLE, LLOYD'S WEEKLY NEWS, and other publications.  
A Vice-President of the British International Association of Journalists  
and of the Newspaper Press Fund





RICHARD CATON WOODVILLE

Journalistic Artist and Battle Painter. Born London, 7th January, 1856. Educated at Düsseldorf in Germany. Commander of the Order of Medjidie and of Daniello Montenegro. Went through Turkish (1878), and Egyptian campaigns (1882)





E. T. REED, J.P.

Edward Tennyson Reed. Artist and Journalist on the staff of PUNCH. Born 27th March, 1860; only son of the late Sir Edward James Reed, K.C.B., F.R.S. Educated at Harrow. Joined PUNCH during Editorship of Sir F. C. Burnand in 1890; commenced "Prehistoric Peeps" series in 1893. Parliamentary Caricaturist to PUNCH in succession to Mr. Harry Furniss since 1894





ERNEST PARKE, J.P.

Managing Editor of the MORNING LEADER and the STAR. Born 1860. Was formerly a reporter of the DAILY GAZETTE and Sub-Editor with the MIDLAND ECHO, both of Birmingham, and later joined the staff of the London Echo, afterwards going to the STAR





BERNARD PARTRIDGE

Journalistic Artist. Born London, 11th October, 1861; son of the late Prof. Richard Partridge, F.R.S. Educated Stonyhurst College. Was engaged chiefly in stained-glass designing and decorative painting from 1880 till 1884; thereafter devoted himself to press and book illustration. Joined the staff of PUNCH, 1891





ARTHUR SPURGEON

General Manager of Cassells, Ltd., since 1905. Born 1861. Began journalism on the NORFOLK NEWS and EASTERN DAILY PRESS, Norwich; became Managing Editor of the Lowestoft WEEKLY PRESS, 1885; entered the National Press Agency as parliamentary representative, and became Managing Editor in 1894. Chairman of the Western Newspaper Company

Arthur Spurgeon, General Manager, Cassells, Ltd.; Journalist, Norfolk News, Eastern Daily Press; Managing Editor, Lowestoft Weekly Press; Parliamentary Representative, Managing Editor, National Press Agency; Chairman, Western Newspaper Company



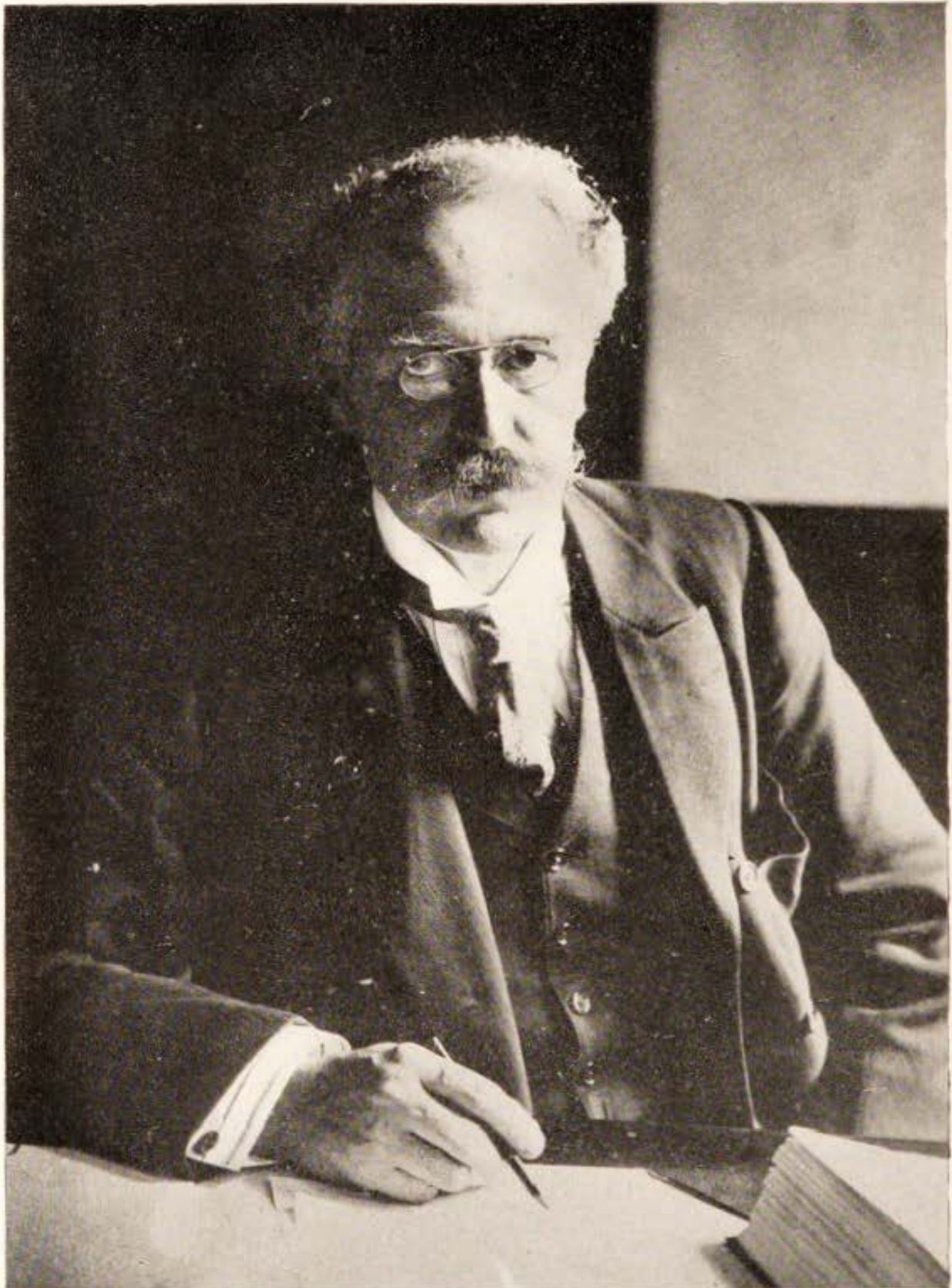


THE HON. HARRY LAWSON, M.A., J.P., F.J.I.  
*Member Executive Committee International Press Conference, 1909*

Eldest son of Lord Burnham, and associated with him in the direction of the DAILY TELEGRAPH. Born in 1862, and educated at Eton and Oxford. President of the Institute of Journalists, September, 1909. A Vice-President of the British International Association of the Press. Has represented several constituencies in Parliament since 1885

The Hon. Harry Lawson [later Sir Harry Levy-Lawson, <sup>195</sup>1st Lord Burnham], Eldest son of Lord Burnham [Sir Edward Levy-Lawson, 1st Lord Burnham; Director, Daily Telegraph [owned by Lord Burnham his father]; President, Institute of Journalists; Vice-President, British International Association of the Press





J. ALFRED SPENDER, F.J.I.

Editor of the WESTMINSTER GAZETTE since 1896. Born 1862. Educated at Oxford. Was editor of the EASTERN MORNING NEWS, Hull, from 1886 to 1890; went to the PALL MALL GAZETTE, 1892; and was appointed Assistant Editor of the WESTMINSTER GAZETTE on its foundation in 1893





JOHN FOSTER FRASER, F.J.I.

Special Correspondent, Traveller, Lecturer. Born 1868. First engaged in provincial journalism, and commenced in London in 1892; later, on parliamentary work. Cycled round the world, 1896; later, journeyed through Siberia, and in 1901 crossed Manchuria. Visited United States, Canada, the Balkans, Russia, etc., as journalist, and is special Parliamentary Correspondent of the STANDARD; occasional contributor to the Reviews





A. WINTON THORPE

Manager and part proprietor of the LONDON NEWS AGENCY since 1898; Managing Director since its incorporation as a limited company in 1901 Chairman of the London News Agency Photos, Ltd. Assistant Editor of the NOTTINGHAM DAILY EXPRESS, 1893; Editor of GALIGNANI'S MESSENGER (Paris), 1894; News Editor of the SUNDAY TIMES, 1895-97, and of the SUNDAY SUN, 1898

A. Winton Thorpe, Manager, Proprietor, London News Agency; Managing Director, London News Agency Photos, Ltd.; Assistant Editor, Nottingham Daily Express; Editor, Galignani's Messenger; News Editor, Sunday Times, Sunday Sun





JOHN GENNINGS

Editor and Manager of the CENTRAL NEWS AGENCY, and Chairman of the Column Printing Company, Ltd. Born at Chichester, 1856. Educated at the Maitland Orphanage, Haverstock Hill, London, and privately. Served for several years in the Government Telegraph Service. London Correspondent of the MANCHESTER COURIER and EDINBURGH COURANT, 1878-1880; member of Editorial staff REUTER'S AGENCY, 1880-1881; London staff MELBOURNE ARGUS, 1882; Night Editor and Foreign Editor CENTRAL NEWS, 1883-1906; Editor and Manager of the CENTRAL NEWS since April, 1907. Editorial writer for American newspapers and Magazines since 1885. Member of the Institute of Journalists, Savage Club, Press Club

John Gessings, Editor, Central News Agency; Chairman, Column Printing Company, Ltd.; Government Telegraph Service; London Correspondent, Manchester Courier, Edinburgh Courant; Editorial Staff, Reuter's Agency; London staff, Melbourne Argus; Night Editor, Central News; Editor, Central News; Editorialist, American newspapers; Member, Institute of Journalists, Savage Club, Press Club





**WILFRED CREYKE KING**

Appointed Secretary of the Exchange Telegraph Company (the well-known News Agency) in 1884, which post he held until 1898, when, on the death of Captain Wm. H. Davies, he became Managing Director.





SIDNEY JAMES LOW, M.A.

Fellow of King's College, London. Educated at King's College School and Balliol College, Oxford (Scholar); Barrister of Inner Temple. Editor of ST. JAMES'S GAZETTE, 1888-97; Leader Writer on STANDARD, 1898, Literary Editor, 1904; Special Correspondent with the Prince of Wales in India, 1905-6, at the Coronation of the King of Norway, 1906, and other important engagements. Alderman of the L. C. C., 1901-5. Author of DICTIONARY OF ENGLISH HISTORY, 1904; THE GOVERNANCE OF ENGLAND, 1904; A VISION OF INDIA, 1906; POLITICAL HISTORY OF THE REIGN OF QUEEN VICTORIA, 1907; and is a frequent contributor to the Reviews

Sidney James Low, Barrister, Inner Temple; Editor, St. James's Gazette; Special Correspondent, Prince of Wales in India; Author, Dictionary of English History, The Governance of England, A Vision of India, Political History of the Reign of Queen Victoria; Contributor, the Reviews





H. T. CADBURY, ESQ.

*A Vice-President of the International Press Conference, 1909*

One of the proprietors of the DAILY NEWS.

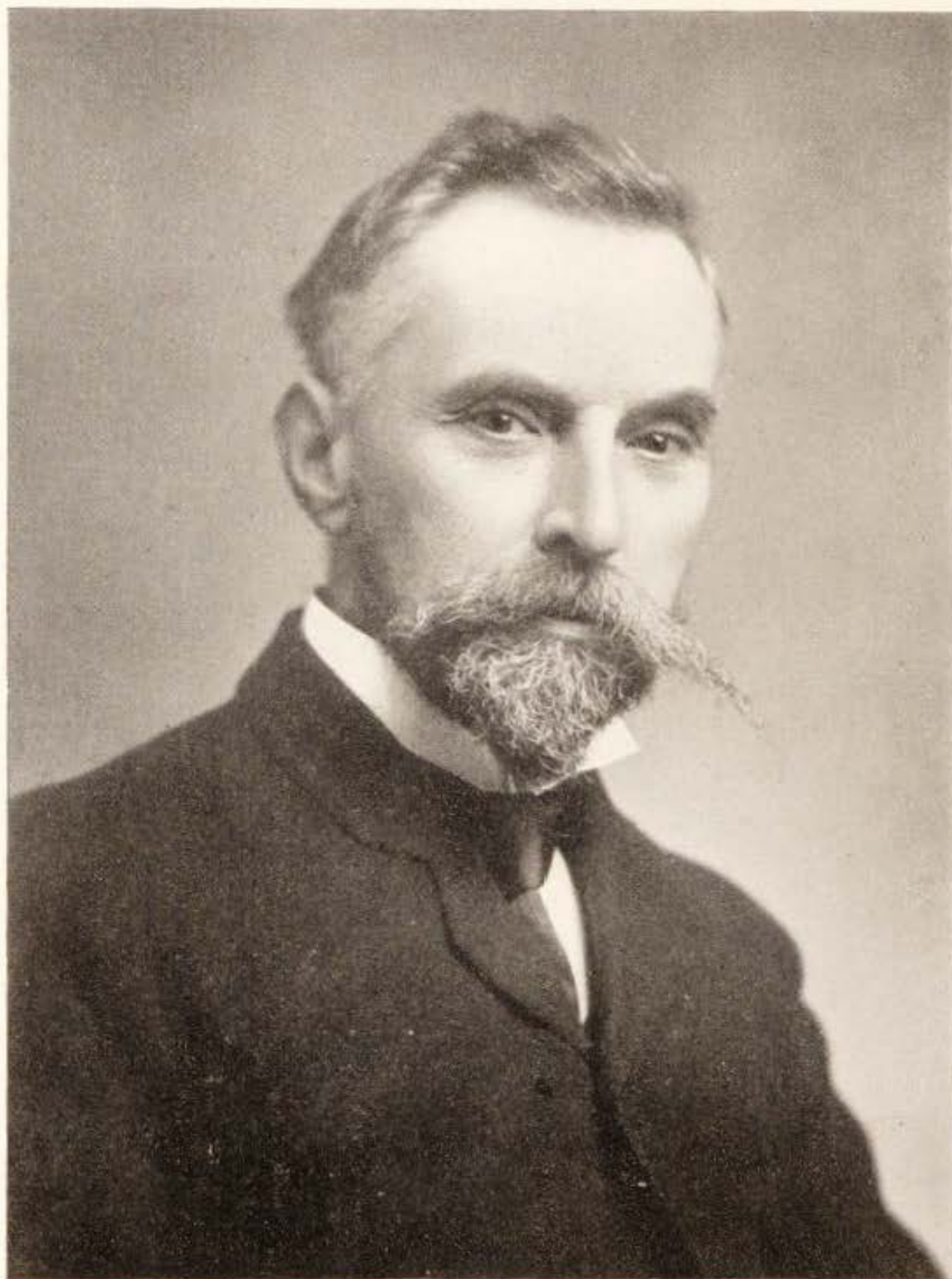


MISS STUART

*A Vice-President of the International Press Conference, 1909*

Original Hon. Secretary of the British International Association of  
Journalists, 1895-1906

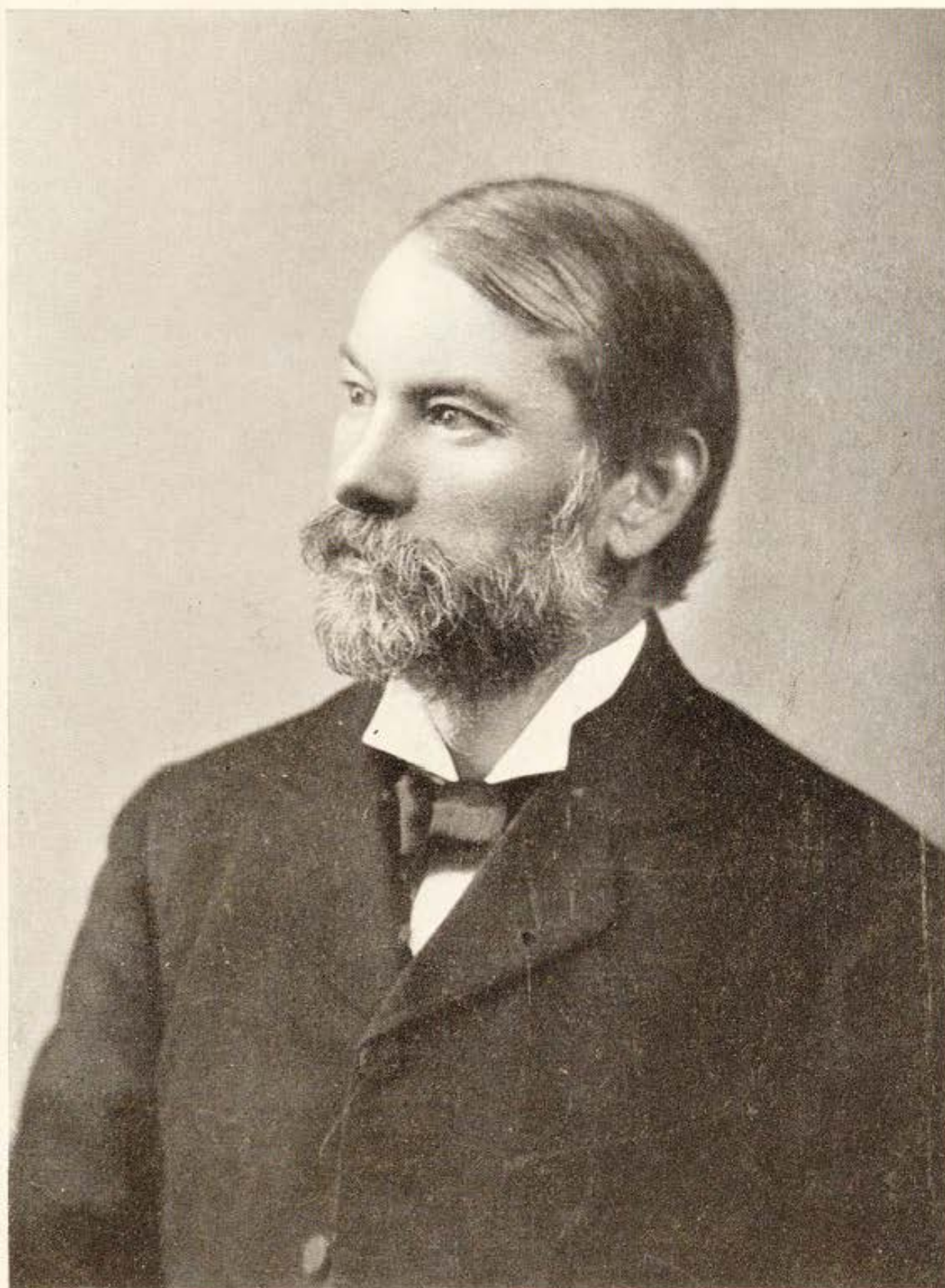




JAMES BAKER, F.R.G.S., F.R.HIST.S.

*Hon. Secretary of the International Press Conference, 1909.*

Journalist, Author, Traveller and Lecturer. Born 1847, his father being founder of a West of England publishing firm. Has travelled in Europe, Asia and Africa, and recounted his experiences in various works. Special correspondent for PALL MALL GAZETTE, BLACK AND WHITE, THE QUEEN, &c. Was voted Great Silver Medal of Prague for his studies of Bohemia, and in 1908 was made a Knight of the Imperial Order of Francis Joseph. Hon. Secretary of the British International Association of Journalists since 1906



J. H. WARDEN, F.J.I.

*Hon. Treasurer of the International Press Conference, 1909*

Associated with the HENDON AND FINCHLEY TIMES; original Hon. Treasurer  
of the British International Association of Journalists, 1897





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SOME FAMOUS  
WAR CORRESPONDENTS

Some Famous  
War Correspondents

SIR WILLIAM HOWARD RUSSELL, KT., LL.D., D.LITT.,  
F.R.G.S., F.Z.S.

Veteran War Correspondent. Born 1820. Was Special Correspondent of the TIMES during the Crimean War, 1854-56, during which period he wrote a famous series of letters depicting the terrible sufferings of the campaign, which led to the first great reform of army field ambulance, military hospitals, and the nursing of the sick and wounded in war, under the noble guidance of Florence Nightingale; the Indian Mutiny, 1857-58; the Civil War in the United States, 1861-62; the Prussian-Austrian War, 1866; the Franco-German War, 1870; South Africa, 1879-80; and Egypt, 1883-84. Visited Egypt and the East in the suite of the then Prince of Wales, 1868, and accompanied him to India as Honorary Private Secretary in 1875-76; and in 1879 visited South Africa with Lord Wolseley. Author of numerous books, including THE ADVENTURES OF DR. BRADY; HESPEROTHEN; A VISIT TO CHILE; and THE GREAT WAR WITH RUSSIA. Sir W. H. Russell, who was a Knight of the Iron Cross, a Commander of the Legion of Honour, and an English Knight, was long regarded as the doyen of War Correspondents.

He died in 1907

Sir William Howard Russell, Special Correspondent, the Times, Crimean War, 1854-56; Florence Nightingale; the India Mutiny, 1857-58; U.S. Civil War, 1861-62; Prussian-Austrian War, 1866; Franco-German War, 1870; South Africa, 1879-80; Egypt, 1883-84; Author, The Adventures of Dr. Brady, Hesperothen: A Visit to Chile; The Great War with Russia



SIR WILLIAM HOWARD RUSSELL



SIR HENRY M. STANLEY, G.C.B.

STANLEY first rose to fame as a Journalist. He acted as Press Correspondent in the American Civil War and in the Indian Wars of the West.

The NEW YORK HERALD, in 1868, sent him as War Correspondent with Sir Robert Napier (afterwards Lord Napier of Magdala) throughout the Abyssinian campaign which culminated in the fall of Magdala. He got his news to London a week ahead of all others. He attended the opening of the Suez Canal, roamed the near Eastern Countries, and went through the Carlist and Republican Wars in Spain.

Instructed by Gordon Bennett (NEW YORK HERALD), Stanley made a remarkable horseback journey through Asia, and led his famous expedition into Central Africa, and found and relieved Dr. Livingstone at Ujiji. He accompanied Sir Garnet (now Lord) Wolseley's Ashanti Expedition to Coomassie. His vivid word-pictures of warfare have probably never been surpassed.

On the death of Livingstone in 1873, Stanley resolved to continue that great man's work, and for the NEW YORK HERALD and the DAILY TELEGRAPH, he led, for more than three years, an exploring expedition through the "Dark Continent." He made many important discoveries, including the southernmost source of the Nile, and Lake Albert Edward; he was first to circumnavigate Victoria Nyanza (an inland freshwater sea of 32,167 square miles) and Lake Tanganyika (14,000 square miles). Explored the upper reaches of the Congo, and traced that mighty river to the sea, victoriously fighting fifty desperate battles in fifty days against fierce cannibal tribes. He solved the great problem of the watersheds of Central Africa, which had hitherto confused and baffled the geographers of the world, many of whom believed that the upper sources of the Congo were the head waters of the Nile.

Stanley made urgent appeals to the British Government to occupy the wasting regions of East, West and Central Africa, including what is now German East Africa and the Great Congo States, and lying across the Cape to Cairo route. All this had been opened up by him and other Englishmen. His entreaties were in vain. Finally, commissioned by the King of the Belgians, Stanley founded the immense Congo Free State, abounding in natural wealth. On his return to the Congo, the cannibal tribes which had fought his exploring expedition received him with respect. He made blood brotherhood with the chiefs, taught their valiant warriors the handicrafts of peace, and opened the way for Christian Missions. Many of these same cannibals, now skilled artisans, are building the Congo steamers.

When Khartoum fell, and Gordon was slain, Stanley responded to the call of the world to rescue Emin Pasha, Gordon's Governor in Equatoria. He led his historic expedition through "Darkest Africa" for three years, relieved Emin, discovered the fabled Mountains of the Moon, and solved the remaining problems of the sources of the White Nile.

To retrieve something from what England had thrown away, Stanley negotiated a treaty for an exchange of territory which secured an all-British route for the Cape to Cairo Railway. This treaty was officially accepted, signed and sealed, but, very soon after, a faint-hearted British Government hastened to abandon it on the demand of the head of a nation which England had gratuitously enriched with vast African possessions.

Although Stanley was challenged and disputed at every step, his discoveries, his facts, and his records have in the end been conclusively verified.

His income was derived exclusively from his work and the proceeds of his writings. He possessed no property in Africa.

At the time of Stanley's first expedition it was estimated that more than a million lives were sacrificed every year in African tribal warfare and slave raiding. Stanley effectually crushed the slave trade, brought peace throughout Central Africa, and opened up immense regions to civilisation and commerce. He died May 10th, 1904, and was buried *not* by the side of Livingstone in Westminster Abbey (for the nation has no voice or power to decide) but in the little village churchyard at Pirbright, Surrey.





SIR HENRY M. STANLEY, G.C.B.

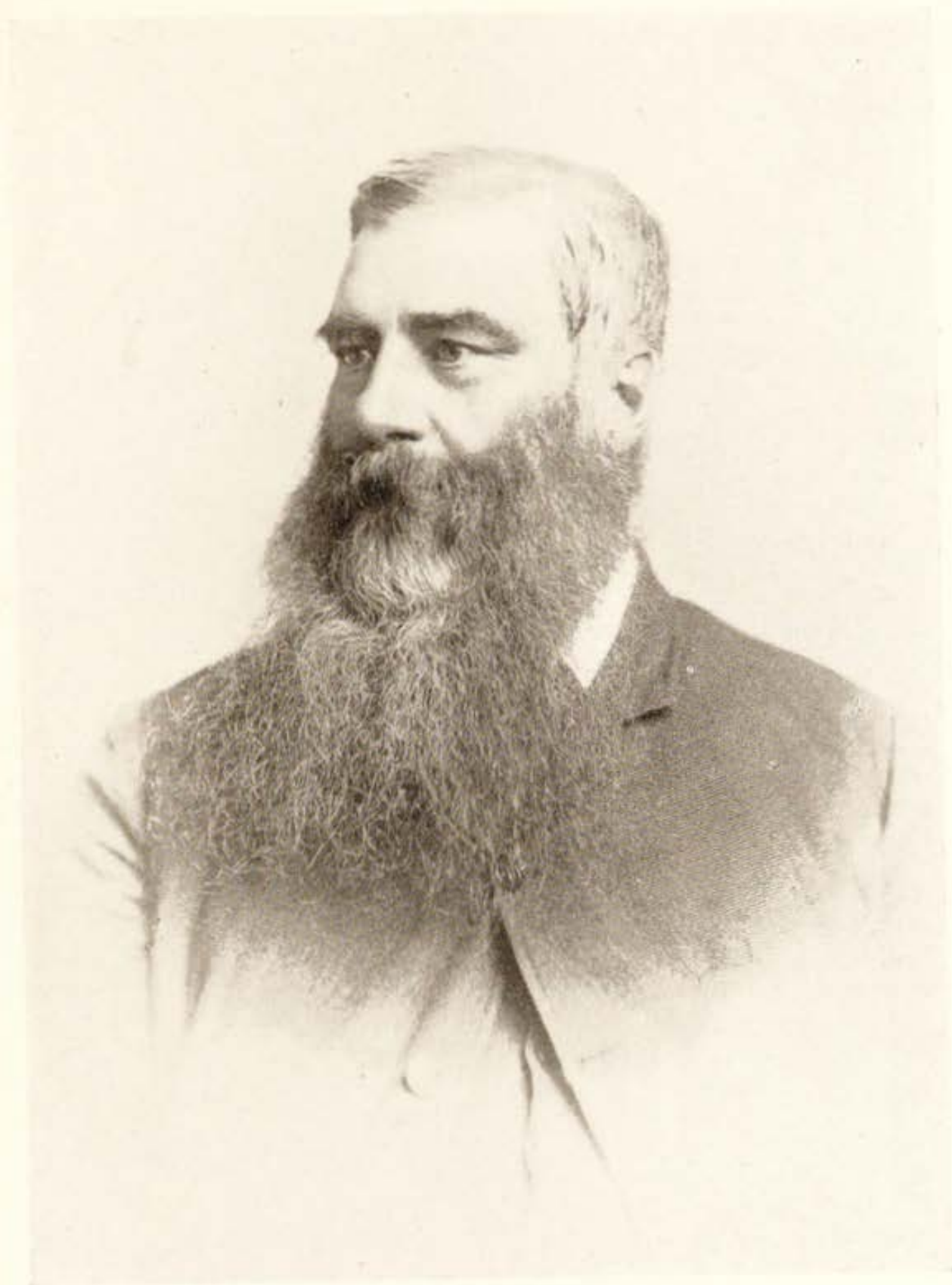
D.C.L. (Oxford, Cambridge and Durham), LL.D. (Edinburgh, etc.); Ph.D. University of Halle; Gold Medallist and Hon. Member of the Royal Geographical Society of London, and of the principal Geographical Societies of the World. Grand Cordon of the Medjidie; Grand Commander of the Osmanlie; Grand Cordon of the Order of the Congo; Grand Commander of the Order of Leopold; Star of Zanzibar; Star of Service on the Congo, etc., etc. M.P. for North Lambeth, 1895-1900. Author of *HOW I FOUND LIVINGSTONE*; *COOMASSIE*; *MAGDALA*; *THROUGH THE DARK CONTINENT*; *THE CONGO*, and *FOUNDING THE FREE STATE*; *IN DARKEST AFRICA*; *MY KALULU*; *MY DARK COMPANIONS*; etc. *AUTOBIOGRAPHY*, edited by Lady Stanley, now in the press



GEORGE ALFRED HENTY

Journalist, Veteran War Correspondent and Author. Born at Trumpington, Cambridge, in 1832. After being educated at Westminster, he proceeded to Caius College, Cambridge, but before he was able to finish his academic course there, an opportunity occurred for him to gratify his love of adventure which he was unable to resist—the outbreak of the Crimean War. He obtained a post in the purveyors' department of the army and went out to the war, but the rigour of the campaign was too much for his health and he was invalided home. On his recovery, he went to Italy and there organised the Hospitals of the Italian Legion. Prior to that, however, he had acted as a Special Correspondent for the *STANDARD*, and for nearly half a century contributed to that journal. As its War Correspondent, he went through the war between Austria and Italy, and through Garibaldi's Italian campaign. With Sir Robert (afterwards Lord Napier of Magdala) throughout his Abyssinian Campaign. Was present at the opening of the Suez Canal. Through the Franco-German War, the Siege of Paris, Carlist Rebellion, and the Servian War. Was with Sir Garnet (now Lord) Wolseley on his Ashanti Expedition to Coomassie. Accompanied the Prince of Wales (now His Majesty the King) on his tour through India. He was also famous as an author of boys' books. He wrote over eighty stories, averaging three or four a year. Among his works were *OUT ON THE PAMPAS*, *A SEARCH FOR A SECRET*, *THE MARCH TO MAGDALA*, *ALL BUT LOST*, *THE MARCH TO COOMASSIE*, *THE YOUNG COLONIST*, *THE YOUNG FRANC-TIREURS*, *WITH THE BRITISH LEGION*, *WITH KITCHENER IN THE SOUDAN*, and *THE TREASURE OF THE INCAS*. Mr. Henty died on board his yacht at Weymouth on November 16th, 1902.

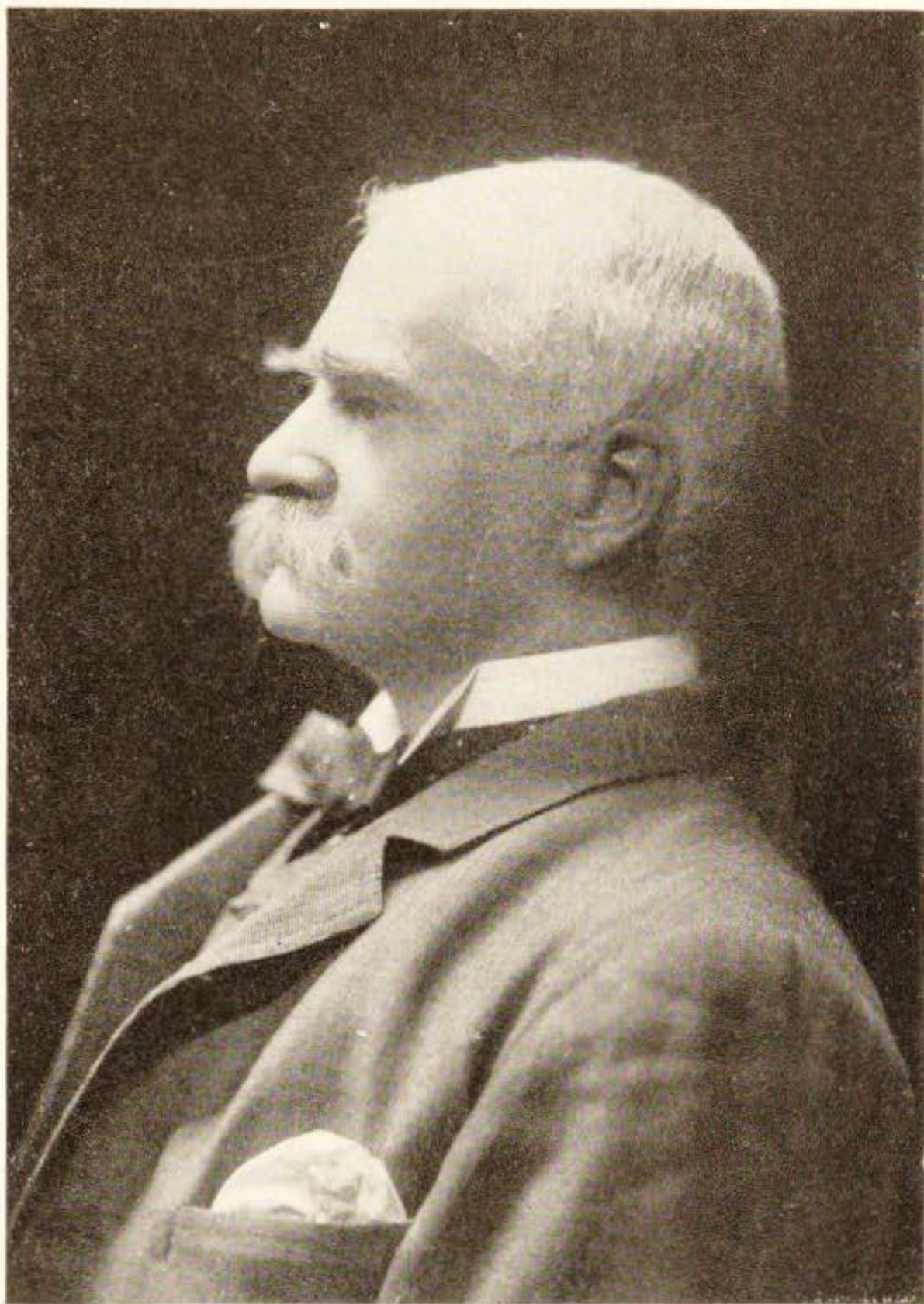




GEORGE ALFRED HENTY  
Veteran War Correspondent and Author

ARCHIBALD FORBES, LL.D.

Special Correspondent of the DAILY NEWS. Born at Boharm Manse, Keith. He was for some years in the Royal Dragoons, but in 1870-71 he went through the great Franco-German struggle as War Correspondent for the DAILY NEWS, and afterwards with the Carlists in Spain, in Cyprus, in the Russo-Turkish Campaign, and in the Zulu War of 1879 he distinguished himself by his extraordinary swiftness, tact and audacity in securing accurate information, and by the vivid pen-pictures of stirring events which he contributed to his journal. Forbes delivered numerous lectures in Great Britain, America and Australia, and was the author of the following books: DRAWN FROM LIFE; GLIMPSES THROUGH THE CANNON SMOKE; CHINESE GORDON; STUDIES OF WAR AND PEACE; NAPOLEON III., etc. Died in 1900



ARCHIBALD FORBES  
On the staff of the DAILY NEWS for many years.



WILLIAM BEATTY KINGSTON

For many years Special Correspondent of the DAILY TELEGRAPH in Berlin and Vienna. Was War Correspondent during the Franco-Prussian War ; with the Army of the Crown Prince in the Black Forest, and with the German Headquarters Staff at Versailles throughout the Siege of Paris. Owing to his close intimacy with Bismarck and Von Moltke, he made his famous *coup* by obtaining for the DAILY TELEGRAPH alone the terms of the capitulation of Paris long before they were communicated to other journalists. In like manner Beatty Kingston was in after years frequently privileged to receive and first publish pronouncements and exclusive information from Prince Bismarck. He spoke fluently many Continental languages, and had remarkable knowledge and gifts of music. Author of MONARCHS I HAVE MET; MUSIC AND MANNERS ; and many other works.



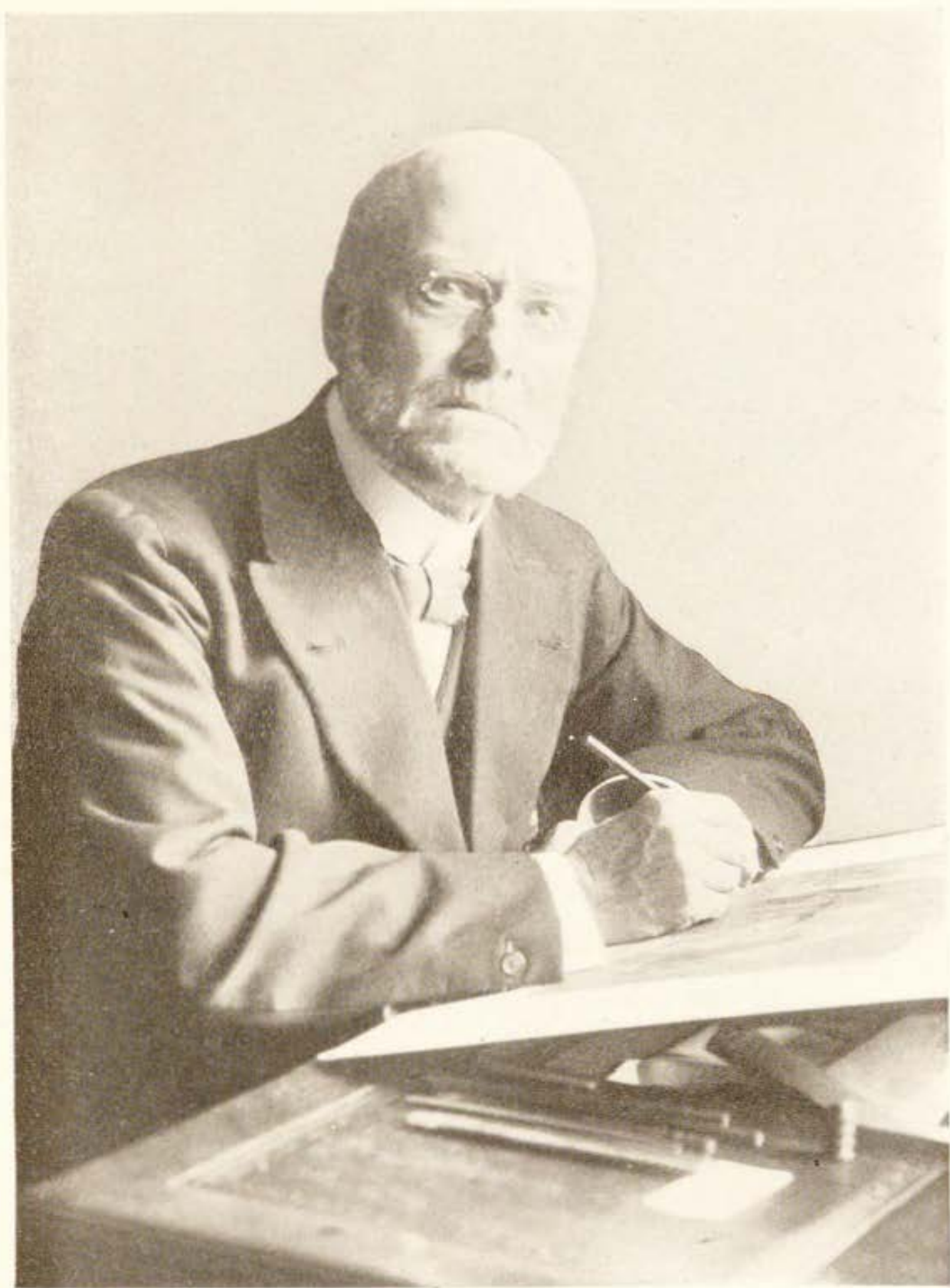
WILLIAM BEATTY KINGSTON

On the staff of the DAILY TELEGRAPH from 1866 until his death in 1900

MELTON PRIOR

Veteran War Artist and Correspondent of the ILLUSTRATED LONDON NEWS; son of the late William Henry Prior, draughtsman and landscape painter. He has represented the ILLUSTRATED LONDON NEWS in, no less than twenty-four campaigns and revolutions, dating back from his first appearance on the battlefield during the Ashanti War of 1873. He saw the Carlist Rising of 1874, and was present in the Herzegovina, Servian, Turkish, Kaffir, Basuto, Zulu and Boer Wars. He was in the Egyptian Campaign of 1882; the Suakim and Nile Expeditions; the Burmese War; the Venezuelan, Brazilian and Argentine Insurrections; the Jameson Raid; the Matabele War; North-West Frontier, India; with Kitchener when he reconquered the Soudan; Cretan Insurrection; and at the Siege of Ladysmith, 1900. In 1875 he went to Athens in the then Prince of Wales' suite, and later travelled with the King of Denmark's expedition through Iceland. Accompanied the Marquis and Marchioness of Lorne on their first visit to Canada, and his pen and pencil have often been employed at State functions like the funeral of the late and the wedding of the present Czar of Russia, the Berlin Conference, the Delhi Durbar of 1902, etc.





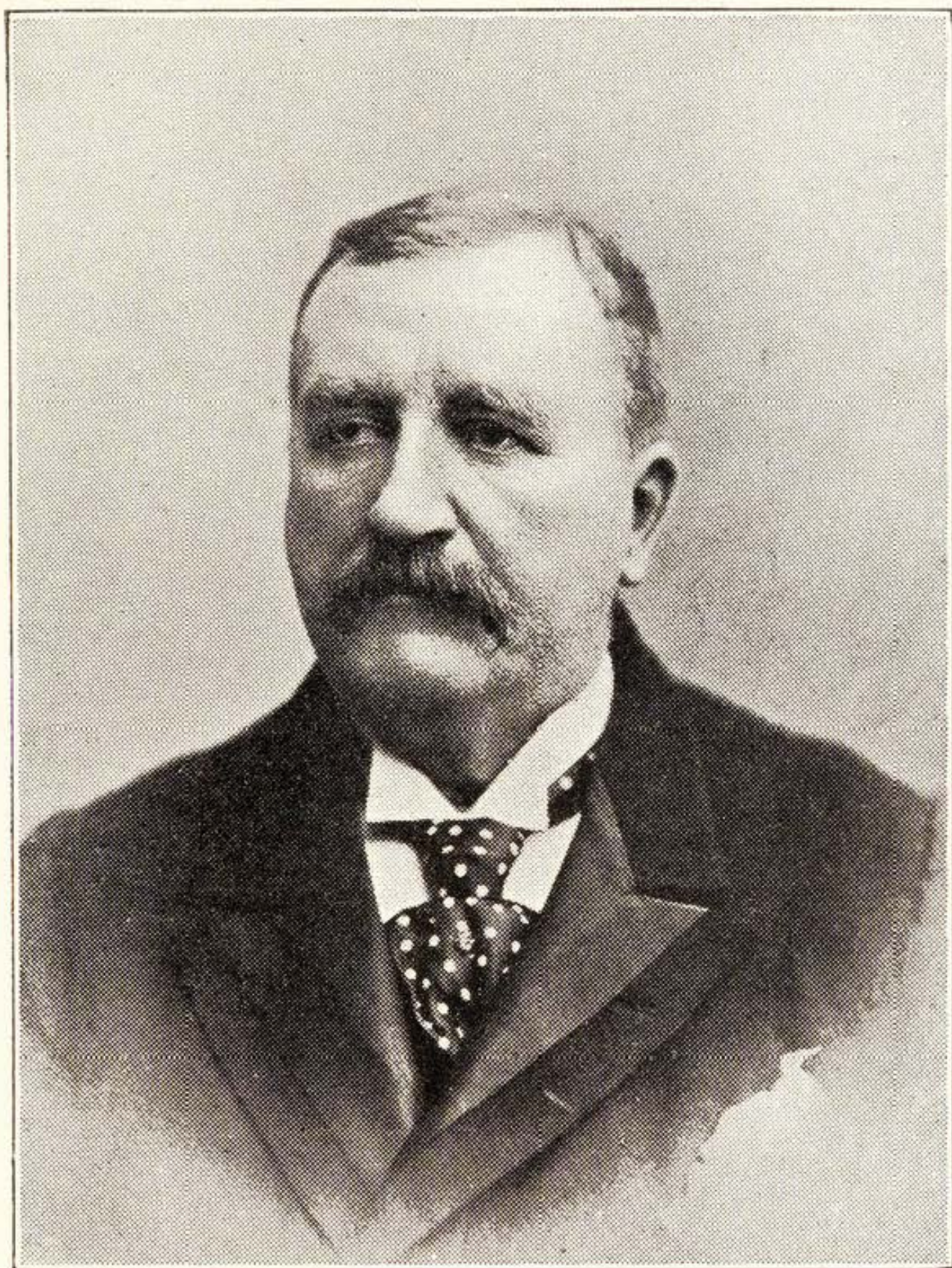
MELTON PRIOR

Special War Correspondent and Artist of the ILLUSTRATED LONDON NEWS

CHARLES WILLIAMS

War Correspondent. Born in 1838. After being educated at Belfast Academy, his health became indifferent, and he went to Nicaragua to recuperate, subsequently joining an expedition of adventure in that country. On returning to England, he joined the staff of the *EVENING STANDARD*, and later became its Editor. Subsequently he became Editor and Manager of the *EVENING NEWS*. Then, as a War Correspondent, he followed General Sir Donald Stewart's force on the march from Candahar to Kabul. Went through Lord Wolseley's Nile Campaign for the Relief of Gordon; with the Desert Force of General Stewart; and at the battles of Abu Klea and Metemneh. As War Correspondent to the *DAILY CHRONICLE*, he was throughout Kitchener's Nile Expedition for the reconquest of the Soudan, and present at the battles of Atbara and Omdurman; whilst during the course of the Boer War he wrote in London the daily diary of the campaign for the *MORNING LEADER*. His varied journalistic experiences included a description of the coronation of the present Czar of Russia. He was always a stout upholder of the rights of the Press and of all that concerned the dignity of his profession. He was a good raconteur, having a vast store of sensational experiences, gained as a war correspondent, to draw upon. He was the author of many works, including, *HOW WE LOST GORDON*, 1885; *ENGLAND'S DEFENCE*; *HUSHED UP*—a criticism of the South African War; and *LIFE OF SIR EVELYN WOOD*. Charles Williams, who for years enjoyed the personal friendship and confidence of the great Political and Military Chiefs, died in his 67th year.





CHARLES WILLIAMS

War Correspondent for the DAILY CHRONICLE, and for some time Editor of  
the EVENING STANDARD and the EVENING NEWS



BENNET BURLEIGH

Veteran War Correspondent. Born at Glasgow. Fought in the American Civil War, was captured and twice sentenced to death. Acted as War Correspondent for CENTRAL NEWS throughout Egyptian Campaign, and present at Battle of Tel-el-Kebir. Then for the DAILY TELEGRAPH was in all the Sudan Campaigns. Was with Generals Baker, McNeill and Graham's expeditions against Osman Digna at Suakim, and with Lord Wolseley's Nile expedition against the Mahdi. Crossed the desert from Korti with General Stewart's column, and was present at the battles of Abu Klea and Metemneh. In the Burma war and in other East Indian campaigns. In the second Ashanti Expedition. In the Chino-Japanese Wars. With Kitchener throughout his Nile Campaign against the Khalifa. Present at the battles of Atbara and Omdurman. Throughout the French Campaign in Madagascar and the South African Boer War. With the Somaliland Expedition. Throughout the Russo-Japanese War. Has been sent on many special journalistic missions for the DAILY TELEGRAPH to most parts of the Globe.

Author of EMPIRE OF THE EAST, etc., etc.



BENNET BURLEIGH  
On the staff of the DAILY TELEGRAPH since 1882



# FREDERIC VILLIERS

YAVOR in WHO'S WHO. War Artist and Correspondent. Born on April 23rd, 1852, and has had an extremely eventful and varied career. He was educated at Guines, Pas-de-Calais, and in 1876 commenced in Servia his long series of journalistic war pictures for the GRAPHIC. In 1877 he was with the Russians in Turkey, and was present at the battles of Saitschar, Alexinatz, and Mount Yavor; with the Russians too he witnessed and depicted the Passage of the Danube, and the fighting at Biela, Plevna, and Shipka. A little later the Afghan War of 1878 took him to Gadamuck and the Bazaar Valley. The next few years were marked by such diverse happenings as a voyage round the world; the battle of Tel-el-Kebir; the coronation of Czar Alexander III.; the fight in the Broken Square at Tamai in 1884; Sir William Hewitt's Mission to King John of Abyssinia; Wolseley's Expedition up the Nile for the Relief of Gordon, during which he was twice wrecked; joined the march of Stewart's heroic column across the Desert; present at the battles of Abu Klea and Gubat in 1885; then back to Europe and across the Bulgarian frontier with the Servian invaders in 1886, to witness the wild struggle at Pirost and the Nishava Valley. Through the Burmese War of 1887. MR. VILLIERS then betook himself for a time to more peaceful scenes, and having journeyed across Canada with the Governor-General, went on a lecturing tour through America and the British Isles, and in 1892 visited the Chicago Exhibition. In 1894, as Special Artist for BLACK AND WHITE, NEW YORK HERALD, SAN FRANCISCO EXAMINER, and the LONDON STANDARD, he went through the Chinese-Japanese War, and was with the Japanese army at Ping Yang and at the taking of Port Arthur. Four years later he witnessed the triumph of Kitchener at Omdurman and the final downfall of the Khalifa. The South African War and the Russo-Japanese War found him again in the field, and he was the only war artist present at the second siege of Port Arthur. In addition to his journalistic work, MR. VILLIERS is the author of several books, including PICTURES OF MANY WARS; PORT ARTHUR; PEACEFUL PERSONALITIES AND WARRIORS BOLD; etc.





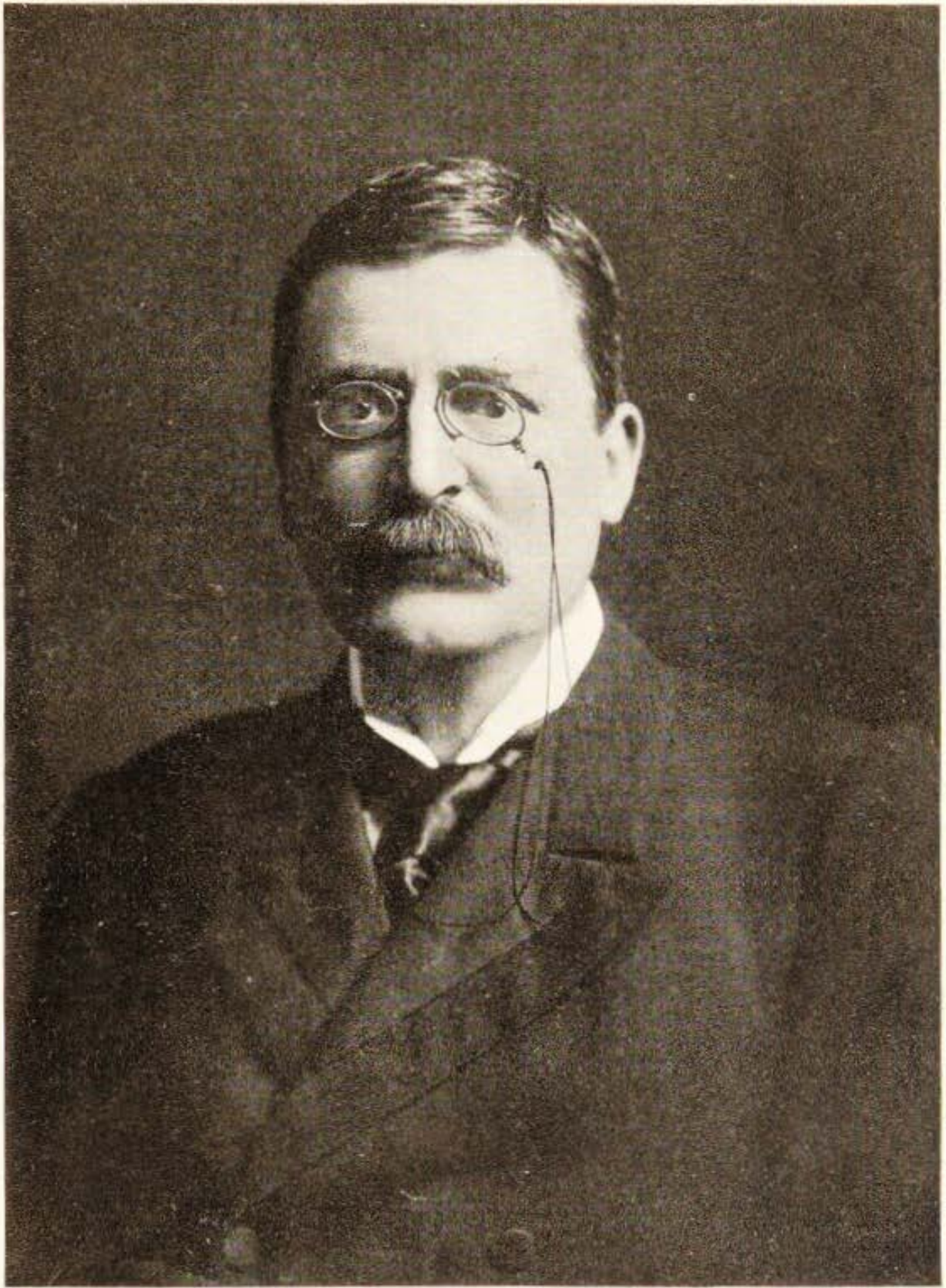
FREDERIC VILLIERS

War Artist and Correspondent for the GRAPHIC, ILLUSTRATED LONDON  
NEWS, STANDARD and other papers

EDWARD FREDERICK KNIGHT

War Correspondent, Journalist and Author. Born 23rd April, 1852; eldest son of Edward Knight, Papcastle, Cumberland. Educated at Westminster School and Caius College, Cambridge. Has travelled extensively in South America, Turkey, South Africa and Central Asia. His first experience of soldiering was with the French as a volunteer in 1870. He was TIMES Correspondent in the Hunza-Nagar Campaign, 1891, throughout which he served as an officer, and was mentioned in despatches. Also in the following wars and expeditions: Matabeleland, 1893-95; Madagascar, 1895; Soudan Campaign, 1896; Greece, 1897; Soudan, 1897-98; Cuba, 1898; Spain, 1899; For the MORNING POST, South Africa, 1899-1900. In the South African Campaign he was severely wounded at Belmont, and lost his right arm. Besides his contributions to the Press, Mr. KNIGHT is the author of numerous books, including ALBANIA AND MONTENEGRO; THE CRUISE OF THE FALCON; THE THREATENING EYE; THE FALCON ON THE BALTIC; THE CRUISE OF THE ALERTE; WHERE THREE EMPIRES MEET, etc.





E. F. KNIGHT  
War Correspondent on the staff of the TIMES for many years, and recently  
with the MORNING POST



### LIONEL JAMES

Of old Anglo-Indian stock. Educated in England. Went to India at an early age and became an Indigo Planter in Bengal. In 1895 he accompanied Sir Robert Low's Expedition for the relief of Chitral, as war correspondent for REUTER'S AGENCY and CALCUTTA ENGLISHMAN. In the Frontier Indian War of 1906-7 he again went to the front and followed the operations on behalf of the ENGLISHMAN, TIMES OF INDIA, and THE GRAPHIC, acting as war artist as well as correspondent. For Reuter's Agency he accompanied Kitchener during his Nile Campaign and reconquest of the Sudan. In 1898 joined the staff of THE TIMES (London) in whose service he has visited nearly every country in the world. Acted as special war correspondent for THE TIMES during 18 months of the Boer War. Organised and directed THE TIMES dispatch boats during the Russo-Japanese War. After battle of Laio Yang Mr. James sent notable descriptive cable message filling a whole sheet of THE TIMES. In 1908 accompanied Gen. Sir James Willcocks' Expedition on the Indian Frontier War. Recently in Persia (Tabriz), Turkey, Macedonia, Montenegro, Bosnia, Herzgovina and Servia. Commands a squadron of the King's Colonial Yeomanry. Author of several books under the nom de plume of "Intelligence Officer," including ON THE HEELS OF DE WET, SIDE TRACKS AND BRIDLE PATHS, etc., etc.



LIONEL JAMES, F.R.G.S.

War Correspondent for THE TIMES and Special Correspondent for REUTER  
in several campaigns



GEORGE WARRINGTON STEEVENS, B.A.

War Correspondent, Travelling Journalist and Author. Born December 10th, 1869. Educated City of London School and Balliol College, Oxford, graduating B.A. Oxford and London University. On the editorial staff PALL MALL GAZETTE, 1893 to 1896. Joined staff DAILY MAIL 1897. Travelled in many countries, contributing special articles on political, social and general subjects. As War Correspondent he went throughout the Greco-Turkish War and Kitchener's Soudan Campaign against the Khalifa. Present at the battles of Atbara and Omdurman. At the front in the South African War, from the first until his untimely death from typhoid fever at Ladysmith during the siege in 1900. Although very young he ranked high amongst journalists and war correspondents, was accurate in his facts, had extraordinary graphic power and pleasing literary style—notable for his vivid pictures of battle-field scenes. Took most hazardous risks in the firing line when in pursuit of news. Author of NAVAL POLICY; MONOLOGUES OF THE DEAD; THE LAND OF THE DOLLAR; WITH THE CONQUERING TURK; WITH KITCHENER TO KHARTOUM; THE TRAGEDY OF DREYFUS; FROM CAPE TOWN TO LADYSMITH





GEORGE WARRINGTON STEEVENS, B.A.  
War Correspondent, Travelling Journalist and Author

## WILLIAM MAXWELL

War Correspondent and Travelling Journalist. For some time with the STANDARD. For the DAILY MAIL he went with Lord Kitchener on his famous march to Khartoum, and was present at the battles of Atbara and Omdurman. Accompanied the Kaiser through the Holy Land and Syria. He sailed with Sir George White for the Cape; was besieged in Ladysmith, and on the relief of the garrison went to Kimberley, then on to Bloemfontein, and was present with Lord Roberts' army in the series of engagements which led up to the capture of Lydenburgh and Komati Poort. He saw President Kruger at Delagoa Bay, and returned to Pretoria by Laing's Nek. Arriving in Europe he witnessed and described the funeral of Queen Victoria, the wedding of the Queen of Holland, and the enthronement of King Edward and his Queen in Parliament. He went with the Prince and Princess of Wales on their tour through Australia, Canada, and the Colonies, and later with Mr. Chamberlain on his South African tour 1902-3. Attended the Peace Conference at the Hague. Mr. Maxwell has since accompanied His Majesty the King on his visits to Lisbon, Gibraltar, Malta, Naples and Rome. With the victorious Japanese army under Kuroki, he was present at the battles of Yalu and Sha-ho; and with Nogi at the fall of Port Arthur. With the Prince of Wales on his Indian tour, interviewing the Sultan of Morocco at Fez. Visited Persia and reported on the death of the elder Shah and on the coronation of his son, the late Shah; journeyed through Persia and along the line of the projected German Railway from Persian Gulf to Constantinople. In addition to his numerous journalistic writings Mr. Maxwell is the author of **WITH THE OPHIR ROUND THE EMPIRE; SIXTEEN FAMOUS BATTLES; WITH THE JAPANESE FROM YALU TO PORT ARTHUR**





WILLIAM MAXWELL, F.J.I.

War Correspondent and Travelling Journalist ; joined the staff of the DAILY MAIL in 1905. For some years Parliamentary Journalist and London Correspondent for the MANCHESTER COURIER



CHARLES E. HANDS

War Correspondent; began his journalistic career in Birmingham, but subsequently removed to London, where he joined the STAR. From thence he went to the PALL MALL GAZETTE and afterwards to the DAILY MAIL, for which he has written for some thirteen years past. His first experience as a War Correspondent was gained in Cuba, when he accompanied the United States Army on behalf of the DAILY MAIL. In this capacity he was at the battle of Santiago, and many other actions. He proceeded to South Africa and was wounded by the Boers, his condition at one time being critical. Another great campaign through which he passed was the Russo-Japanese War, to which he proceeded *via* Siberia to Manchuria, accompanying the Russian forces. Mr. Hands has been in the thick of the revolutionary movement in Russia, and gained as a journalist, the confidence alike of Government officials and revolutionaries. He acted as Special Correspondent during the French operations at Casa Blanca



CHARLES E. HANDS  
War Correspondent and Travelling Journalist for the DAILY MAIL

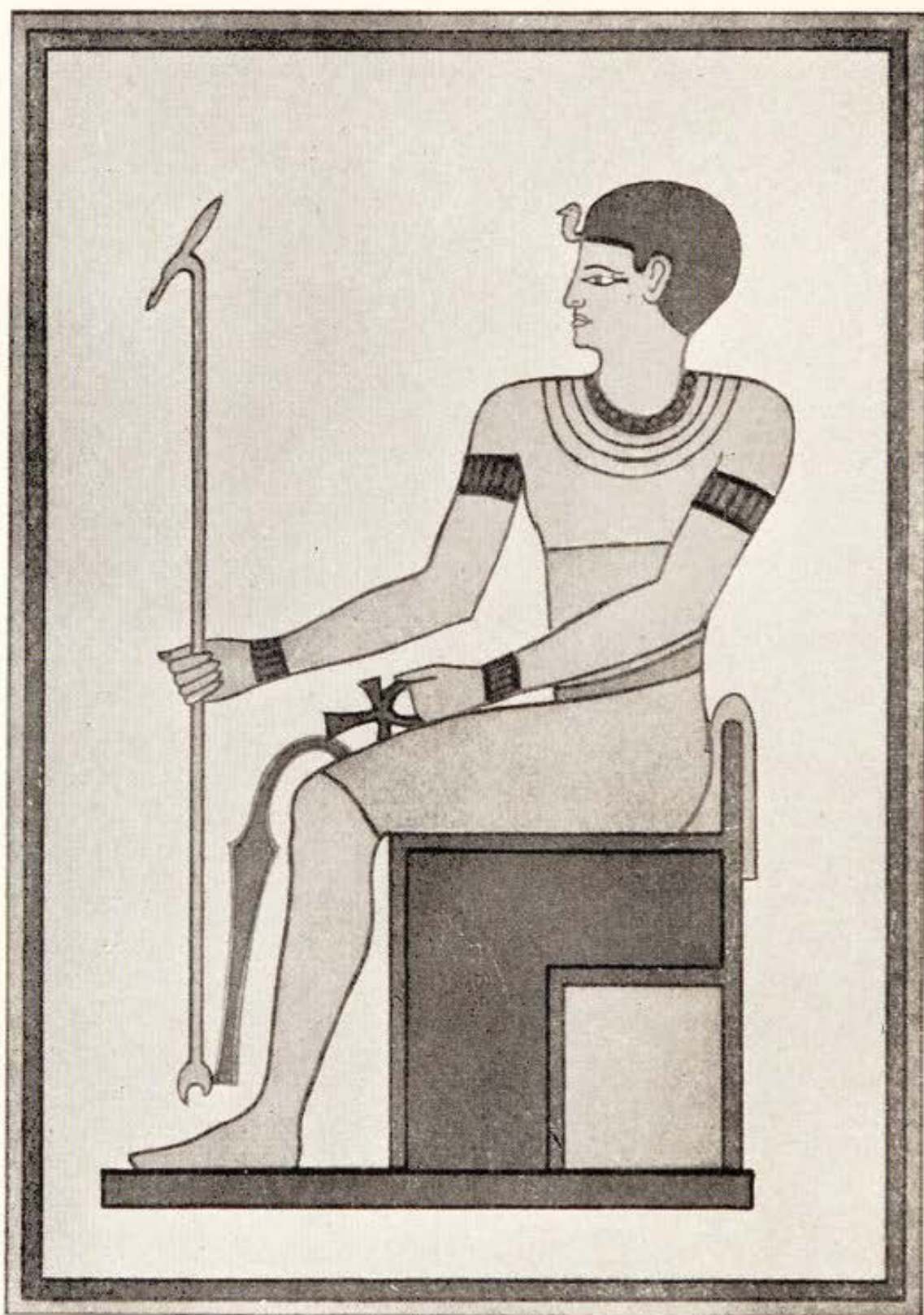




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THE  
EVOLUTION OF WEAPONS  
FOR THE  
BATTLE OF LIFE

The Evolution of Weapons for the Battle of Life



I-EM-HETEP

ALSO CALLED IMHOTEP, IMOUTHES IMHOTPOU

I-EM-HETEP ("He who cometh in peace"), the earliest known Egyptian deity of medicine and healing, was the good physician of gods and men. There is little doubt that he was a real personage, renowned for his skill in healing, who lived in the reign of Tser of the II. Dynasty, and was afterwards deified

HISTORICAL EXHIBITION  
OF  
RARE AND CURIOUS OBJECTS  
  
RELATING TO  
MEDICINE, CHEMISTRY, PHARMACY  
AND THE ALLIED SCIENCES  
  
TO BE HELD IN LONDON 1913

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ORGANISED BY, AND UNDER THE  
DIRECTION OF

HENRY S. WELLCOME





THE AFFLICTION OF JOB  
From a woodcut of the XVI century



## HISTORICAL MEDICAL EXHIBITION

With the object of stimulating the study of the great past, I am organising an Exhibition in connection with the history of medicine, chemistry, pharmacy, and the allied sciences. It is my aim to bring together a collection of historical objects illustrating the development of the art and science of healing, etc., throughout the ages.

The Exhibition will be *strictly professional and scientific in character*, and will not be open to the general public.

For many years I have been engaged in researches respecting the early methods employed in the healing art, both among civilised and uncivilised peoples. It has been my object in particular to trace the origin of the use of remedial agents.

Why were certain substances used in the treatment of disease?

Was their adoption the result of study and practical observation, or was it more usually the result of accident?

Were the alleged virtues purely imaginary and due to some superstitious suggestion?

A consideration of such questions is always of interest and sometimes adds to our knowledge.

There is a considerable amount of information scattered throughout the world in folk-lore, in early manuscripts, and in printed books, but the difficulties of tracing out and sifting the evidence are great. I anticipate that the Exhibition will reveal many facts, and will elucidate many obscure points in connection with the origins of various medicines, and in respect to the history of diseases. It should also bring to light many objects of historical interest hitherto known only to the possessors and their personal friends.

I shall greatly value any information sent me in regard to medical lore, early traditions, or references to antient medical treatment in manuscripts, printed works, etc. Even though the items be but small, they may form important connecting links in the chain of historical evidence.

Interesting information concerning quaint customs practised in connection with the healing art, and items of curious medical lore, may often be gathered from peasants and others living in



country districts. Medical missionaries, and others in contact with native races, can also obtain particulars of interest in this connection. Every little helps, and, as I am desirous of making the Historical Medical Exhibition as complete as possible, I shall be grateful for any communications anyone may be able to make.

It is my desire ultimately to place before the Profession, in a collected form, all the information obtained.

The success of the undertaking will largely depend upon the co-operation of those who, like myself, are interested in these subjects. The following pages indicate the range of the proposed Exhibition. I trust I may count upon the kind assistance of readers possessing objects of historical medical interest, by lending them, so that the Exhibition may be thoroughly representative. I should also highly esteem information as to any similar objects in the possession of others.

I need hardly say that the greatest care will be taken of every object lent. All exhibits will be insured, also while in transit, if requested, and packing and carriage both ways will be paid. Unless a desire be expressed to the contrary, the name of each contributor will be mentioned in the catalogue, and placed with the exhibit.

Hints and suggestions in connection with the Exhibition will be much appreciated.

Owing to the magnitude of the work involved in arranging, classifying and obtaining loans of interest from all quarters of the globe, and to my desire to make the Exhibition as complete and comprehensive as possible, a considerable period of time is necessary. The date fixed, therefore, is 1913. Meanwhile, I should greatly appreciate any information which may be forwarded to me in regard to medical traditions, references and illustrations of antient medical or surgical treatment, and also the offer of any loans of suitable objects.

HENRY S. WELLCOME

SNOW HILL BUILDINGS

LONDON (ENG.)



## CLASSIFICATION OF EXHIBITS FOR THE HISTORICAL MEDICAL EXHIBITION

### SECTION I

Paintings, drawings, engravings, prints, photographs, models, silhouettes, sculptures and casts of medical interest :—

- (a) Portraits of distinguished physicians, surgeons, alchemists, chemists, apothecaries, pharmacists, nurses, etc.
- (b) Pictures of antient British and foreign, medical, chemical and pharmaceutical institutions.
- (c) Representations of important and interesting events in the history of medicine, chemistry and pharmacy.
- (d) Medals, medallions, and coins of medical interest.

### SECTION 2

Rare and curious manuscripts, incunabula, books, periodicals, pamphlets and book-plates, on, and connected with, medical, chemical, pharmaceutical and allied scientific subjects.

### SECTION 3

Letters, prescriptions, autographs, records of experiments, antient diplomas, licences, instruments, apparatus, and other personal relics of medical, pharmaceutical and chemical interest.

### SECTION 4

Curiosities of Medicine :—

- (a) Materia medica of all ages. Specimens of antient medicines, remedial agents in all forms.
- (b) Recipes and formulæ of all ages.
- (c) Antient and modern medicine chests—civil, military and naval.
- (d) Votive offerings for health, antient and modern amulets, amuletic medicines, medals, tokens, seals, emblems, charms and talismans. Medical relics of savage and primitive peoples.
- (e) Antient corporate insignia and early diplomas in medicine and surgery granted by British and foreign colleges.
- (f) Rare and curious memorials of medical practice.
- (g) Specimens illustrating medication by animal substances.
- (h) Relics of the influence of astrology on medicine.

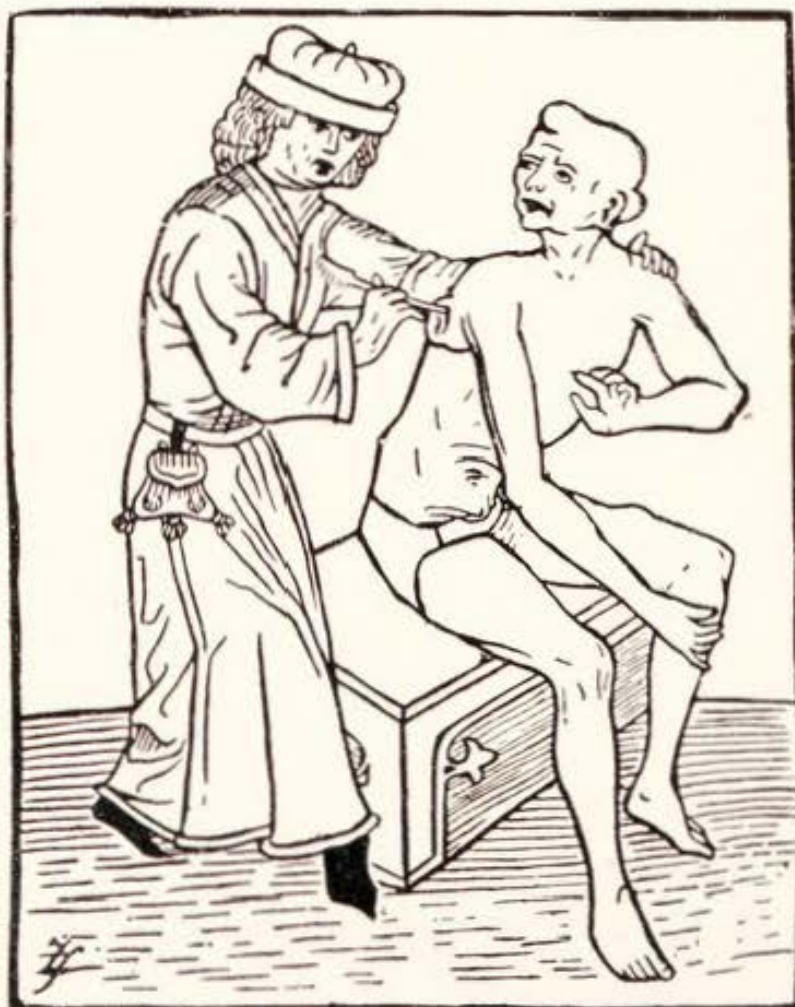


AN ANTIENT  
METHOD OF  
TREATING  
HEADACHE

The actual cautery, a heated iron rod, was a favourite method of treatment for many diseases in Anglo Saxon times. —From an MS. of the XII century.

TREATMENT FOR  
PLAGUE IN  
MEDIÆVAL TIMES

Physician opening a plague bubo.—From a woodcut of the XVI century.





## SECTION 5

Curiosities of Surgery, Anatomy and Pathology :—

- (a) Relics of antient and mediæval surgery, dentistry and veterinary surgery.
- (b) Antient and mediæval hospital equipment.
- (c) Curiosities of anatomy, and curious anatomical models.
- (d) History and development of instruments and appliances used in surgery and medicine.
- (e) Historical and antient surgical instruments and appliances, etc.
- (f) Instruments used in surgery in prehistoric times and by savage peoples.
- (g) Improvised instruments and appliances that have been used in emergencies (especially those that have led to inventions and discoveries).
- (h) Calculi and other pathological specimens of historical interest.
- (i) Models for obstetrical teaching.

## SECTION 6

Curiosities of Pharmacy :—

- (a) Quaint pharmaceutical recipes.
- (b) Scales, weights and measures of all ages.
- (c) Antient stills, mortars and pharmaceutical implements.
- (d) Curious bottles, carboys, retorts, alembics, ointment and specie jars, drug vases, pots, ewers and mills, etc.
- (e) Curious laboratory apparatus.
- (f) Antient prescription-books and price lists.
- (g) Antient counter bills, labels, business cards, curious advertisements and trade tokens.
- (h) Antient apothecaries' shop-signs, early shop-fittings and appliances.
- (i) Early pharmaceutical specialities, and specimens of obsolete and strange medical combinations.
- (j) Old travellers' advice books, curious orders, etc.

## SECTION 7

Products and preparations, antient and modern, of chemical and scientific research :—

- (a) First specimens of rare alkaloids and other active principles made by their discoverers.
- (b) Rare elements and their salts, etc.



SECTION 8

Curiosities of Allied Sciences:—

- (a) Antient herbaria.
- (b) Abnormal plant forms.
- (c) Curious magnetic and electrical appliances.
- (d) Curious relics of dental surgery—
  - (1) Early artificial dentures
  - (2) Antient instruments, appliances, etc.
- (e) Optics—
  - (1) Antient spectacles and eye-glasses.
  - (2) Early instruments and appliances used by oculists.

SECTION 9

Historical apparatus associated with important discoveries in medicine, chemistry, pharmacy, electricity, etc.

A  
CURE  
FOR  
WORMS!



A QUACK  
SALVER  
OF THE  
XVII  
CENTURY

SECTION 10

- (a) Objects of interest, antient and modern, connected with preventive medicine, public health, tropical medicine.
- (b) Exhibits illustrative of physiology, anthropology, microscopy, bacteriology, biology and geography.
- (c) Placards, posters, manifestos, declarations concerning epidemic diseases, etc.
- (d) Antient bills of health.

SECTION 11

Nursing and Ambulance :—

- (a) Early hospital and general nursing.
- (b) Accouchement chairs.
- (c) Nursery appliances and feeding apparatus for infants.
- (d) Ambulance appliances.
- (e) Antient feeding-cups, bottles, urinals and bed-pans.
- (f) Naval and Military nursing and ambulance appliances and equipments
- (g) Relics and objects of interest associated with nurses.
- (h) Relics of Foundling Hospitals.

SECTION 12

Quackery :—

- (a) Antient and modern pictures, prints, and relics of notorious quack doctors.
- (b) Specimens of quack medicines, preparations and appliances.
- (c) Old bills, placards and pamphlets referring to quack medicines.

SECTION 13

Criminology :—

- (a) Curious poisons.
- (b) Historical objects connected with famous poisoning and other criminal cases.
- (c) Curious methods of torture and execution.

SECTION 14

History of the nomenclature, causation and treatment of the most important diseases that have afflicted mankind from the earliest periods, for example :—

Smallpox, leprosy, plague, tuberculosis, epilepsy, scurvy, cholera, cancer, malaria, syphilis, king's evil, etc.





FAITH-HEALING  
IN  
EARLY TIMES

King Edward healing by touch. — *From an engraving of the XVII century.*

QUAINT SURGICAL  
TREATMENT IN THE  
XIV CENTURY

A surgeon of the XIV century applying a bandage to a dislocated jaw.





Some of these diseases were recognised by the Egyptians, Chinese, Hindoos, Hebrews and others, thousands of years ago, and antient methods of treatment are perpetuated to the present day.

It is my aim to map out as complete a history as possible of these and other specific diseases, and I shall appreciate the assistance of any who may be able to furnish links in the chain of evidence of identification, history, treatment, etc., etc., such as are obtainable from local medical folk-lore, antient manuscripts, and early printed books, etc.

### SECTION 15

Photography :—

- (a) Objects illustrating the invention and history of photography.
- (b) Early cameras and apparatus
- (c) Daguerreotypes.
- (d) Portraits of the pioneers of photography.
- (e) Original papers and early MSS. on photography.
- (f) Application of photography to medicine.
- (g) Early X-ray apparatus.
- (h) Curiosities of photography.

### SECTION 16

Adulteration and falsification of drugs, medicines, food-stuffs, fabrics, and of any articles affecting health, or associated with medicine, chemistry, pharmacy and allied sciences.

All communications respecting the Historical Medical Exhibition should be addressed to—

HENRY S. WELLCOME

Snow Hill Buildings, LONDON, E.C. (Eng.)



ANTIENIT IRISH AMULETS OF GOLD AND STONE  
used as charms against disease

THIBETAN  
CHARM,  
OR AMULET



CARRIED  
TO PREVENT  
DISEASE

[Go Back to INDEX \(PDF p. 10\)](#)

## THE MARCH OF SCIENCE

“ Without a scientific foundation no permanent superstructure can be raised. Does not experience warn us that the rule of thumb is dead and that the rule of science has taken its place ; that to-day we cannot be satisfied with the crude methods which were sufficient for our forefathers, and that those great industries which do not keep abreast of the advance of science must surely and rapidly decline ? ”

*Extract from a speech by H.R.H. The Prince of Wales at the International Congress of Applied Chemistry, London, May 27, 1909*





WELLCOME CHEMICAL RESEARCH LABORATORIES  
KING STREET, LONDON (ENGLAND)

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

THE WELLCOME  
CHEMICAL RESEARCH LABORATORIES

Frederick B. Power

FREDERICK B. POWER, PH.D., LL.D.  
*Director of the Laboratories*

KING STREET, SNOW HILL, LONDON (ENG.)

AWARDS CONFERRED UPON THE  
WELLCOME CHEMICAL RESEARCH LABORATORIES

INTERNATIONAL  
EXPOSITION  
ST. LOUIS, 1904

ONE GRAND PRIZE  
AND  
THREE GOLD MEDALS



INTERNATIONAL  
EXHIBITION  
LIÈGE, 1905

ONE GRAND PRIZE  
ONE DIPLOMA OF HONOUR  
AND  
TWO GOLD MEDALS



INTERNATIONAL  
EXHIBITION  
MILAN, 1906

ONE GRAND PRIZE



FRANCO-BRITISH  
EXHIBITION  
LONDON, 1908

TWO GRAND PRIZES



FOR  
CHEMICAL AND PHARMACOGNOSTICAL RESEARCH  
ETC., ETC.



# THE WELLCOME CHEMICAL RESEARCH LABORATORIES

## ORGANISATION, EQUIPMENT AND DEVELOPMENT

Those who have observed the progress of events in Great Britain during the last decade cannot fail to have been impressed with the remarkable developments and achievements by which it has been attended, especially in the domains of the chemical, physical and biological sciences. The discovery within the past few years of several new elements in the atmosphere, the liquefaction, and even solidification, of gases that were hitherto regarded as permanent, the synthesis of several important organic compounds, the isolation of new substances, and the more precise characterisation of those previously known, together with the perfection of chemical processes and the applications of electricity in chemical and metallurgical operations, are but a few examples of the contributions to knowledge and the industrial progress which have signalised the closing years of the past and the beginning of the new century.

The march  
of science

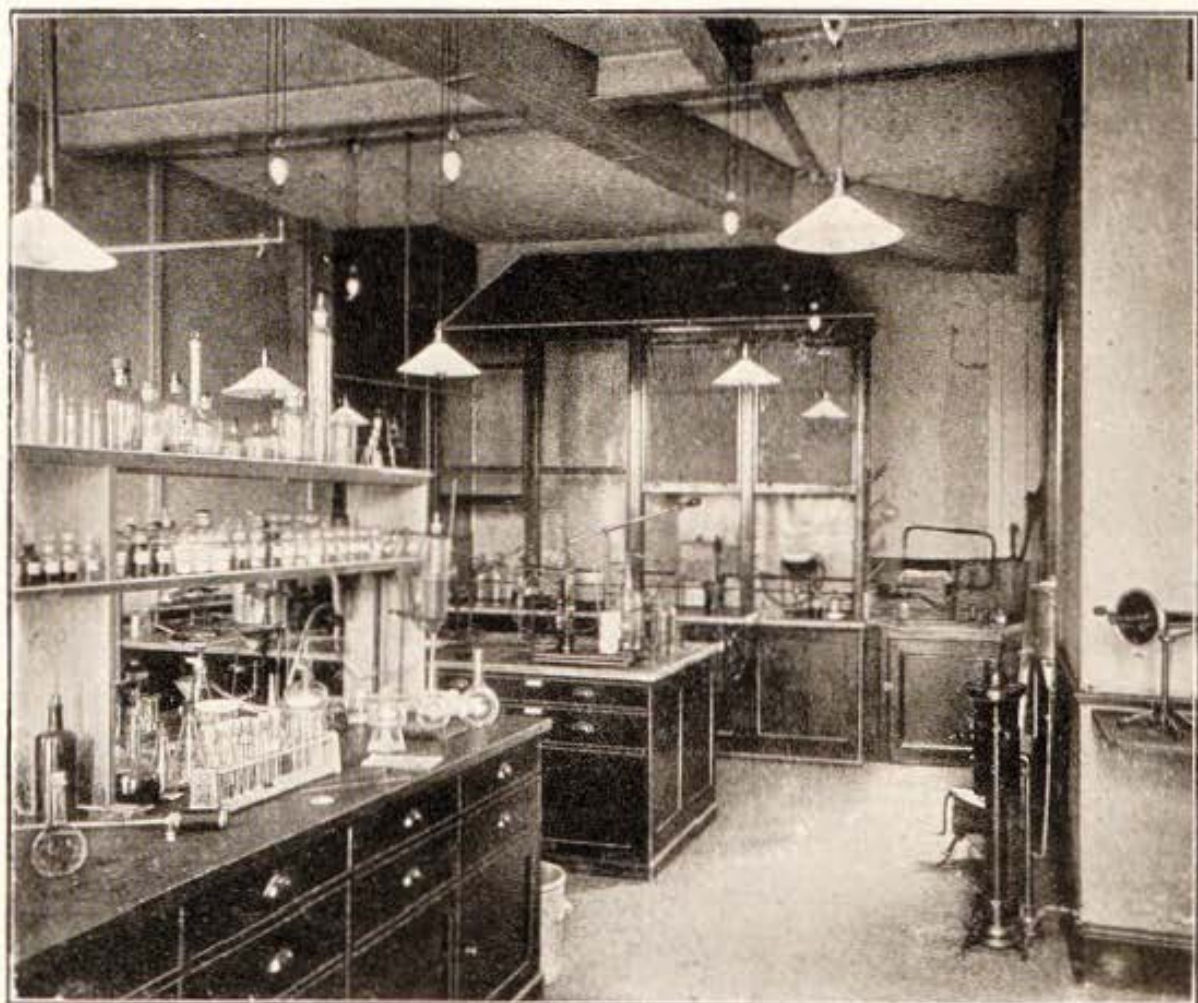
The spirit of research has, in fact, now become so diffused as to have penetrated into almost every department of human knowledge and activity. With a broader recognition of its usefulness, and even of its necessity, as an element of progress, research is no longer confined to institutions of learning, but has proved to be a quite indispensable factor in its relation to industrial pursuits, as well as for the study of those important problems in medical science which are so intimately associated with the health and happiness of mankind. It has indeed been truly said that "without a knowledge of the constitution or structure of the molecules which go to make up the substances employed as remedies, therapeutics, or the administration of these remedies, can never be an exact science. Thus the research chemist may contribute, though indirectly, his share towards placing medicine upon a real and scientific basis."

The spirit  
of research





ONE OF THE LABORATORIES—FIRST FLOOR



ONE OF THE LABORATORIES—SECOND FLOOR



It is worthy of note that the year 1896 was marked by the establishment in Great Britain of at least three laboratories devoted exclusively to scientific research—namely, the Davy-Faraday Research Laboratory connected with the Royal Institution, which was formally inaugurated in December, 1896; the new Research Laboratory of the Royal College of Physicians of Edinburgh, which was formally opened in November, 1896; and the WELLCOME CHEMICAL RESEARCH LABORATORIES, which were established in the summer of 1896.

British  
Chemical  
Research  
Laboratories

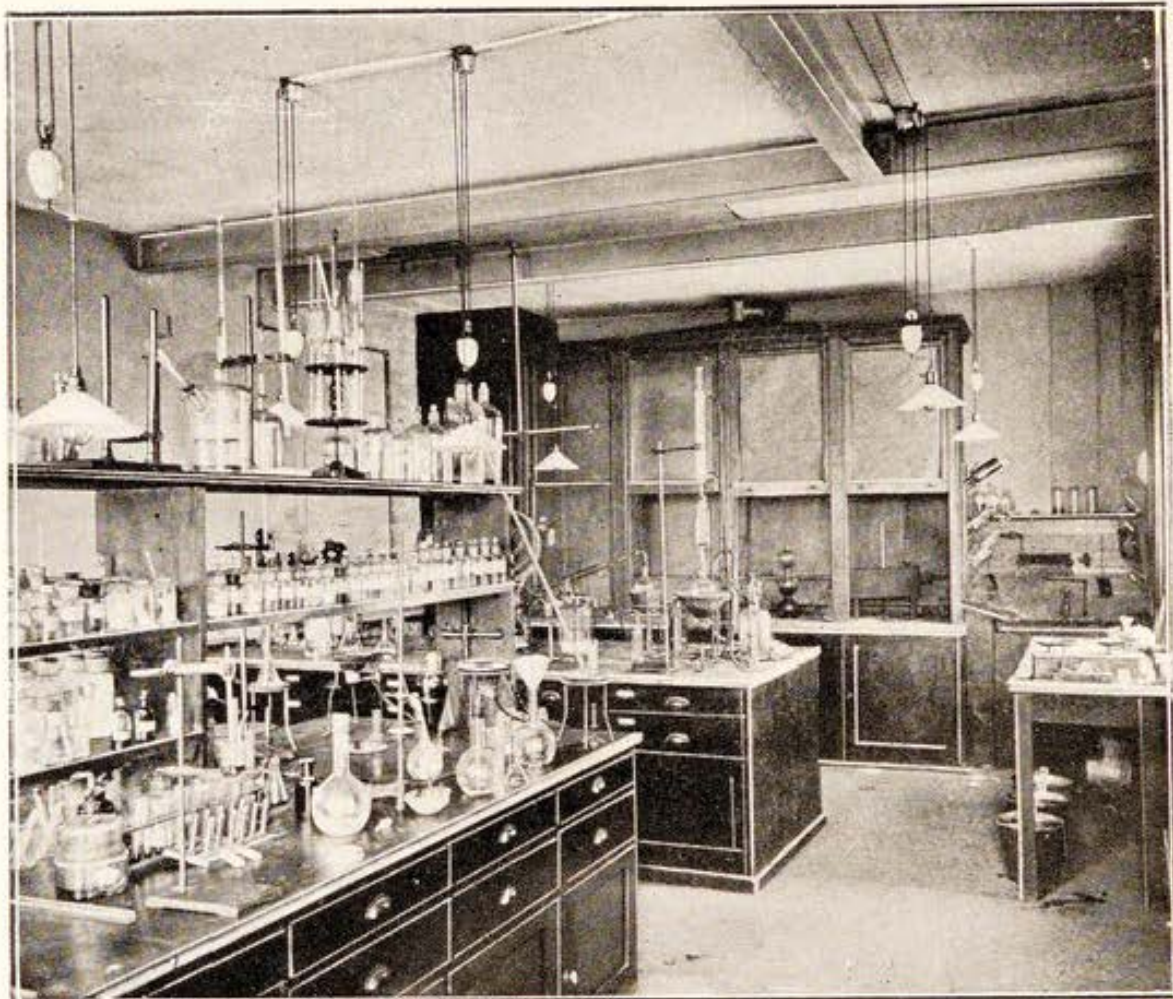
The scope of these laboratories and the directions in which research is conducted in them, naturally differ. The first-mentioned, for example, is more especially of an academic character, and is therefore devoted to somewhat abstract investigations in chemistry and physics; the second is stated to have for its primary object the examination of morbid specimens and material, the study of zymotic diseases, and, in general, bacteriological, physiological and pathological work; while the third, the WELLCOME CHEMICAL RESEARCH LABORATORIES, are designed for investigations in both pure and applied chemistry, and, in the latter instance, with special reference to the study of that large class of both organic and inorganic compounds which are employed as medicinal agents in the treatment of disease.

The  
Wellcome  
Chemical  
Research  
Laboratories

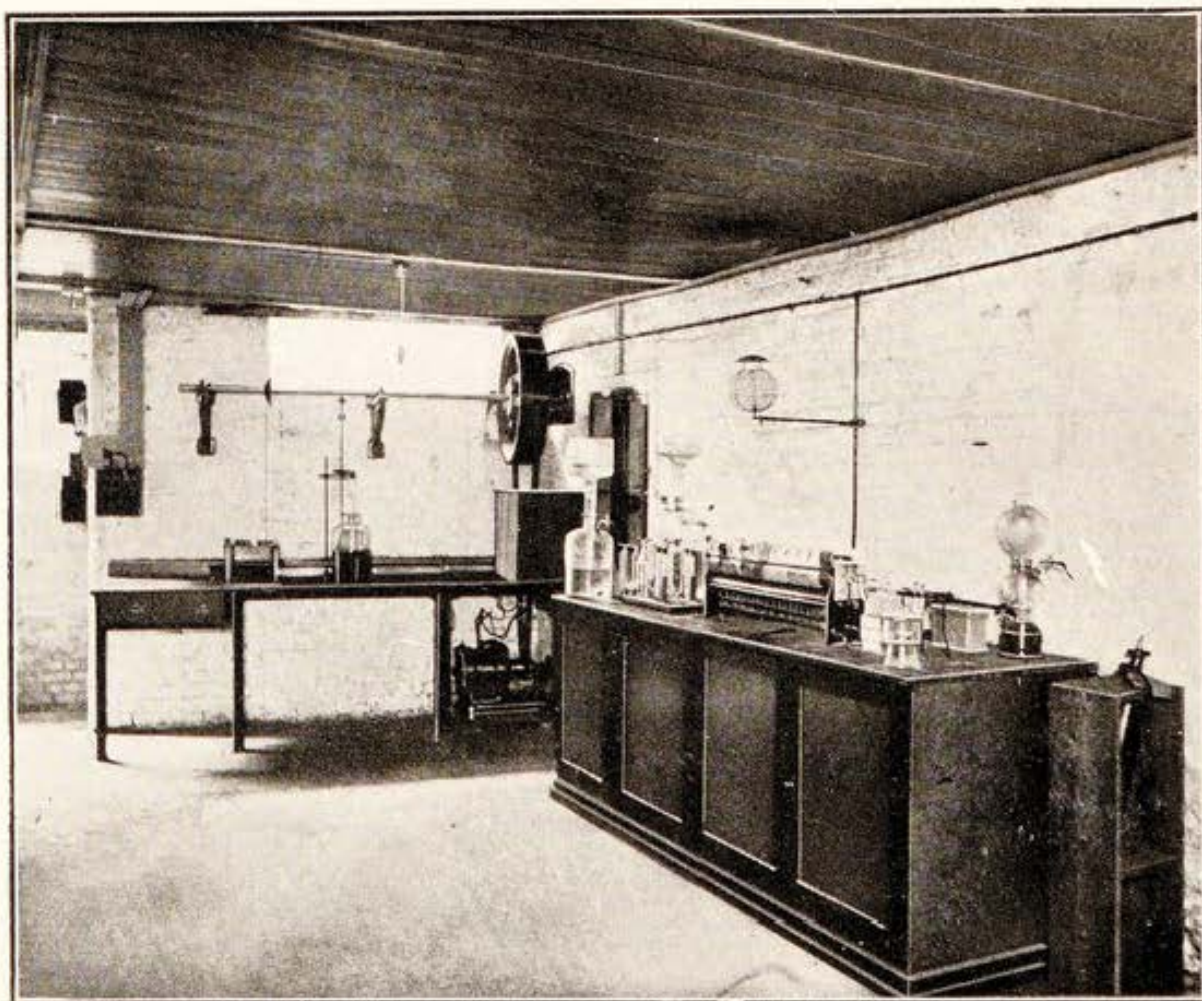
The importance of the work which it is the purpose to accomplish in these different, but more or less closely related, departments of science is apparent, and is duly appreciated by those who recognise the deficiencies of existing knowledge.

In response to numerous requests, it has been considered that a brief sketch of the WELLCOME CHEMICAL RESEARCH LABORATORIES, descriptive of their organisation, equipment and development would prove of interest to a considerable number who have not the opportunity of inspecting them.





ONE OF THE LABORATORIES—THIRD FLOOR



THE COMBUSTION ROOM



The first announcement of the plan of Mr. Henry S. Wellcome to establish the Chemical Research Laboratories which bear his name, was made on the occasion of a dinner given by him to Dr. Frederick B. Power, the present Director, at the Holborn Restaurant, London, on the evening of July 21, 1896. The occasion was a memorable one in many respects, for the gathering included a large number of distinguished representatives of the various sections of the scientific world. It was then explained by Mr. Wellcome that the work which he proposed to inaugurate was one which he personally had very much at heart, that it would be carried out on no selfish lines, but would be controlled and dictated with the highest regard for science. It was also made clear that the new Chemical Research Laboratories were to be entirely distinct from those of the Works of his firm, in which, as heretofore, research would also continue to be conducted. The expressions of appreciation of the high purpose and the scientific spirit which had actuated Mr. Wellcome in the development of such extended plans for chemical research, as manifested by various distinguished speakers on the occasion referred to, were indeed most auspicious, and fittingly commemorated the inauguration of the work that was to be undertaken.

Distinguished  
scientists'  
approval

The first home of the laboratories was in a building located at No. 42, Snow Hill, but it was soon found desirable to make considerable extensions. In order to accomplish this, it was decided that the laboratories should be transferred to a building of their own, of which they should have complete use and possession. Such premises were secured at No. 6, King Street, Snow Hill, where in a very central part of London, and amid surroundings replete with many of its most interesting historical associations, the laboratories are now located.

In the heart  
of London

The building is a handsome, modern one of Venetian style of architecture, and comprises four stories and a basement. A view of it is represented on *page 192*.



On the ground floor of the building are the office of the Director, and the library, the latter being quite complete for the special requirements. It contains not only a considerable number of recent chemical and pharmacological works, but also complete sets of many journals, such as the *Journal of the Chemical Society*, *Berichte der deutschen chemischen Gesellschaft*, the *Chemical News*, *Journal of the Society of Chemical Industry*, etc. Files of many of the more important chemical, pharmaceutical and medical periodicals of England, America and Germany are also kept. As several very large and complete scientific and technical libraries are also at all times accessible to members of the staff, it is evident that the requirements in this direction are most abundantly supplied. In the library there is also a cabinet containing specimens of the various substances obtained in the course of laboratory investigations, which already form a collection of considerable interest.

The laboratories proper are located on the first, second and third floors of the building, and are represented on *pages* 196, 198. They are similar in their arrangement, are provided with gas and electricity for both illuminating and heating purposes, and completely equipped with all the necessary apparatus and appliances for conducting chemical investigations. There are pumps on each table for filtration under pressure, and special adaptations for vacuum distillations.

A separate connection with the electric mains supplies the current for heating iron plates used for the distillation of ether and other similar liquids. Each laboratory is provided with fine analytical and ordinary balances, which are carefully protected from dust and moisture by tightly-fitting glass cases. There are also telephones on each floor, so that communication between the different laboratories or with the Director's office can be quickly effected.

The basement of the building, which is well-lighted by electricity, contains a combustion furnace and all the appliances for



conducting ultimate analyses, whilst two other furnaces of the most approved construction are available in the laboratories; it also contains a large electric motor for working the shaking and stirring apparatus, drug mill, etc., and a dark-room adapted for polarimetric or photographic work. A view of a portion of the combustion room is shown on *page 198*. In direct communication with the basement are dry and commodious vaults, which afford ample room for the storage of the heavier chemicals and the reserve stock of glass-ware, etc. By means of a small lift, articles may be conveniently transported from the basement to any floor of the building.

Ultimate  
analysis and  
photographic  
work

From this brief description, and the accompanying photographic illustrations, it will be seen that the WELLCOME CHEMICAL RESEARCH LABORATORIES are unique in their appointments and in the purpose they are designed to accomplish.

It is, perhaps, hardly necessary to explain that some of the problems which engage the time and attention of members of the staff—which comprises a number of highly-skilled and experienced chemists—are of technical application, having reference to the perfection of the chemical products of Burroughs Wellcome & Co. These naturally do not always afford material for publication, and many other difficult researches extend over considerable periods of time. Nevertheless, a considerable number of publications, embodying the results of original work contributed to various scientific societies, which are now consecutively numbered, have already been issued. Other investigations in progress will, from time to time, form the subjects of future communications.

Original  
work and  
scientific  
publications

Although too short a period has elapsed, since the establishment of these laboratories, to afford much material for a historical retrospect, their present measure of success may be considered to have justified the expectations of their founder and of those who are in sympathy with the work which they aim to accomplish.

SCIENTIFIC PAPERS PUBLISHED BY  
THE WELLCOME CHEMICAL RESEARCH  
LABORATORIES

1. SOME NEW GOLD SALTS OF HYOSCINE, HYOSCYAMINE AND ATROPINE
2. THE CHARACTERS AND METHODS OF ASSAY OF THE OFFICIAL HYPOPHOSPHITES
3. NOTE ON THE MYDRIATIC ALKALOIDS
4. PREPARATION OF ACID PHENYLIC SALTS OF DIBASIC ACIDS
5. A NEW METHOD FOR THE ANALYSIS OF COMMERCIAL PHENOLS
6. THE ASSAY OF PREPARATIONS CONTAINING PILOCARPINE
7. PILOCARPINE AND THE ALKALOIDS OF JABORANDI LEAVES
8. A NEW GLUCOSIDE FROM WILLOW BARK
9. THE CONSTITUTION OF PILOCARPINE—Part I
10. THE COMPOSITION AND DETERMINATION OF CERIUM OXALATE
11. RESEARCHES ON MORPHINE—Part I
12. OBSERVATIONS RELATING TO THE CHEMISTRY OF THE BRITISH PHARMACOPŒIA
13. MERCUROUS IODIDE
14. THE COMPOSITION OF BERBERINE PHOSPHATE
15. A CONTRIBUTION TO THE PHARMACOGNOSY OF OFFICIAL STROPHANTHUS SEED
16. THE CHEMISTRY OF THE JABORANDI ALKALOIDS
17. A NEW ADMIXTURE OF COMMERCIAL STROPHANTHUS SEED
18. RESEARCHES ON MORPHINE—Part II
19. THE CONSTITUTION OF PILOCARPINE—Part II
20. THE CHEMISTRY OF THE BARK OF ROBINIA PSEUD-ACACIA, *Linn.*
21. THE ANATOMY OF THE BARK OF ROBINIA PSEUD-ACACIA, *Linn.*
22. A SOLUBLE MANGANESE CITRATE AND COMPOUNDS OF MANGANESE WITH IRON



SCIENTIFIC PAPERS—*continued*

23. THE CHEMICAL CHARACTERS OF SO-CALLED IODO-TANNIN COMPOUNDS
24. THE CONSTITUTION OF PILOCARPINE—Part III
25. A NEW SYNTHESIS OF  $\alpha$ -ETHYLTRICARBALLYLIC ACID
26. THE CONSTITUENTS OF THE ESSENTIAL OIL OF ASARUM CANADENSE,  
*Linn.*
27. DERIVATIVES OF GALLIC ACID
28. THE OCCURRENCE OF SALICIN IN DIFFERENT WILLOW AND POPLAR  
BARKS
29. THE CONSTITUENTS OF COMMERCIAL CHRYSAROBIN
30. THE CONSTITUENTS OF AN ESSENTIAL OIL OF RUE
31. METHYL  $\beta$ -METHYLHEXYL KETONE
32. INTERACTION OF KETONES AND ALDEHYDES WITH ACID CHLORIDES
33. THE ANATOMY OF THE STEM OF DERRIS ULIGINOSA, *Benth.*
34. THE CHEMISTRY OF THE STEM OF DERRIS ULIGINOSA, *Benth.*
35. THE CONSTITUTION OF PILOCARPINE—Part IV
36. PREPARATION AND PROPERTIES OF DIMETHYLGLYOXALINE AND  
DIMETHYLPYRAZOLE
37. THE ELECTROLYTIC REDUCTION OF PHENO- AND NAPHTHO-  
MORPHOLONES
38. CHEMICAL EXAMINATION OF KÓ-SAM SEEDS (BRUCEA SUMATRANA,  
*Roxb.*)
39. COMPARATIVE ANATOMY OF THE BARKS OF THE SALICACEÆ—  
Part I
40. THE CONSTITUTION OF CHRYSOPHANIC ACID AND OF EMODIN
41. THE CONSTITUTION OF EPINEPHRINE
42. A LÆVO-ROTATORY MODIFICATION OF QUERCITOL
43. THE CONSTITUENTS OF THE ESSENTIAL OIL OF CALIFORNIAN LAUREL
44. SOME DERIVATIVES OF UMBELLULONE
45. THE CONSTITUENTS OF CHAULMOOGRA SEEDS



SCIENTIFIC PAPERS—*continued*

46. THE CONSTITUTION OF CHAULMOOGRIC ACID—Part I
47. CHEMICAL EXAMINATION OF CASCARA BARK
48. CHEMICAL EXAMINATION OF GYMNEMA LEAVES
49. THE RELATION BETWEEN NATURAL AND SYNTHETICAL GLYCERYL-PHOSPHORIC ACIDS
50. GYNOCARDIN, A NEW CYANOGENETIC GLUCOSIDE
51. PREPARATION AND PROPERTIES OF 1 : 4 : 5—TRIMETHYLGLYOXALINE
52. THE CONSTITUTION OF PILOCARPINE—Part V
53. THE CONSTITUTION OF BARBALOIN—Part I
54. THE CONSTITUENTS OF THE SEEDS OF HYDNOCARPUS WIGHTIANA, *Blume*, AND OF HYDNOCARPUS ANTHELMINTICA, *Pierre*
55. THE CONSTITUENTS OF THE SEEDS OF GYNOCARDIA ODORATA, *R.Br.*
56. THE SYNTHESIS OF SUBSTANCES ALLIED TO EPINEPHRINE
57. CHEMICAL EXAMINATION OF GRINDELIA
58. CHEMICAL EXAMINATION OF AETHUSA CYNAPIUM, *Linn.*
59. PREPARATION AND PROPERTIES OF SOME NEW TROPEINES
60. THE CONSTITUENTS OF THE ESSENTIAL OIL FROM THE FRUIT OF PITTOSPORUM UNDULATUM, *Vent.*
61. THE CONSTITUTION OF UMBELLULONE
62. LONDON BOTANIC GARDENS
63. CHEMICAL AND PHYSIOLOGICAL EXAMINATION OF THE FRUIT OF CHAILLETIA TOXICARIA
64. CHEMICAL EXAMINATION OF ERIODICTYON
65. THE BOTANICAL CHARACTERS OF SOME CALIFORNIAN SPECIES OF GRINDELIA
66. THE RELATIONS BETWEEN NATURAL AND SYNTHETICAL GLYCERYL-PHOSPHORIC ACIDS—Part II
67. THE CONSTITUTION OF UMBELLULONE—Part II
68. THE REDUCTION OF HYDROXYLAMINODIHYDROUMBELLULONEOXIME
69. THE CONSTITUTION OF CHAULMOOGRIC AND HYDNOCARPIC ACIDS

SCIENTIFIC PAPERS—*continued*

70. THE CONSTITUENTS OF THE ESSENTIAL OIL OF AMERICAN PENNYROYAL
71. THE CONSTITUTION OF HOMO-ERIODICTYOL
72. THE INTERACTION OF METHYLENE CHLORIDE AND THE SODIUM DERIVATIVE OF ETHYL MALONATE
73. CHEMICAL EXAMINATION OF THE FRUIT OF BRUCEA ANTIDYSENTERICA, *Lam.*
74. CHEMICAL EXAMINATION OF THE BARKS OF BRUCEA ANTIDYSENTERICA, *Lam.*, AND BRUCEA SUMATRANA, *Roxb.*
75. CHEMICAL EXAMINATION OF GRINDELIA—Part II
76. CHEMICAL EXAMINATION OF LIPPIA SCABERRIMA, *Sonder* ("Beukess Boss")
77. CHEMICAL EXAMINATION OF THE ROOT AND LEAVES OF MORINDA LONGIFLORA
78. THE CONSTITUENTS OF THE ESSENTIAL OIL OF NUTMEG
79. CHEMICAL EXAMINATION OF MICROMERIA CHAMISSONIS (*Yerba Buena*)
80. THE CONSTITUTION OF UMBELLULONE—Part III
81. THE CONSTITUENTS OF OLIVE LEAVES
82. THE CONSTITUENTS OF OLIVE BARK
83. CHEMICAL EXAMINATION OF IPOMOEA PURPUREA
84. THE CHARACTERS OF OFFICIAL IRON ARSENATE
85. PREPARATION OF A SOLUBLE FERRIC ARSENATE
86. THE CONSTITUENTS OF THE EXPRESSED OIL OF NUTMEG
87. CHEMICAL EXAMINATION AND PHYSIOLOGICAL ACTION OF NUTMEG
88. SOME OBSERVATIONS REGARDING "OLEUROPEIN" FROM OLIVE LEAVES
89. CHEMICAL EXAMINATION OF ERIODICTYON—Part II
90. THE CONSTITUENTS OF THE BARK OF PRUNUS SEROTINA
91. THE CONSTITUENTS OF THE RHIZOME OF APOCYNUM ANDROSAEMIFOLIUM
92. *iso*-AMYGDALIN, AND THE RESOLUTION OF ITS HEPTA-ACETYL DERIVATIVE





WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES  
HERNE HILL, LONDON (ENGLAND)

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm



THE WELLCOME  
PHYSIOLOGICAL RESEARCH  
LABORATORIES

H.H. Dale

H. H. DALE, M.A., M.D.  
*Director*

BROCKWELL HALL, HERNE HILL, LONDON (ENG.)

AWARDS CONFERRED UPON THE  
WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

INTERNATIONAL  
EXPOSITION  
ST. LOUIS, 1904

ONE GRAND PRIZE  
AND  
ONE GOLD MEDAL



INTERNATIONAL  
EXHIBITION  
LIÈGE, 1905

ONE GRAND PRIZE  
AND  
TWO GOLD MEDALS



INTERNATIONAL  
EXHIBITION  
MILAN, 1906

ONE GRAND PRIZE



FRANCO-BRITISH  
EXHIBITION  
LONDON, 1908

TWO GRAND PRIZES



FOR  
PHYSIOLOGICAL RESEARCH AND PREPARATIONS  
ETC., ETC.

## THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

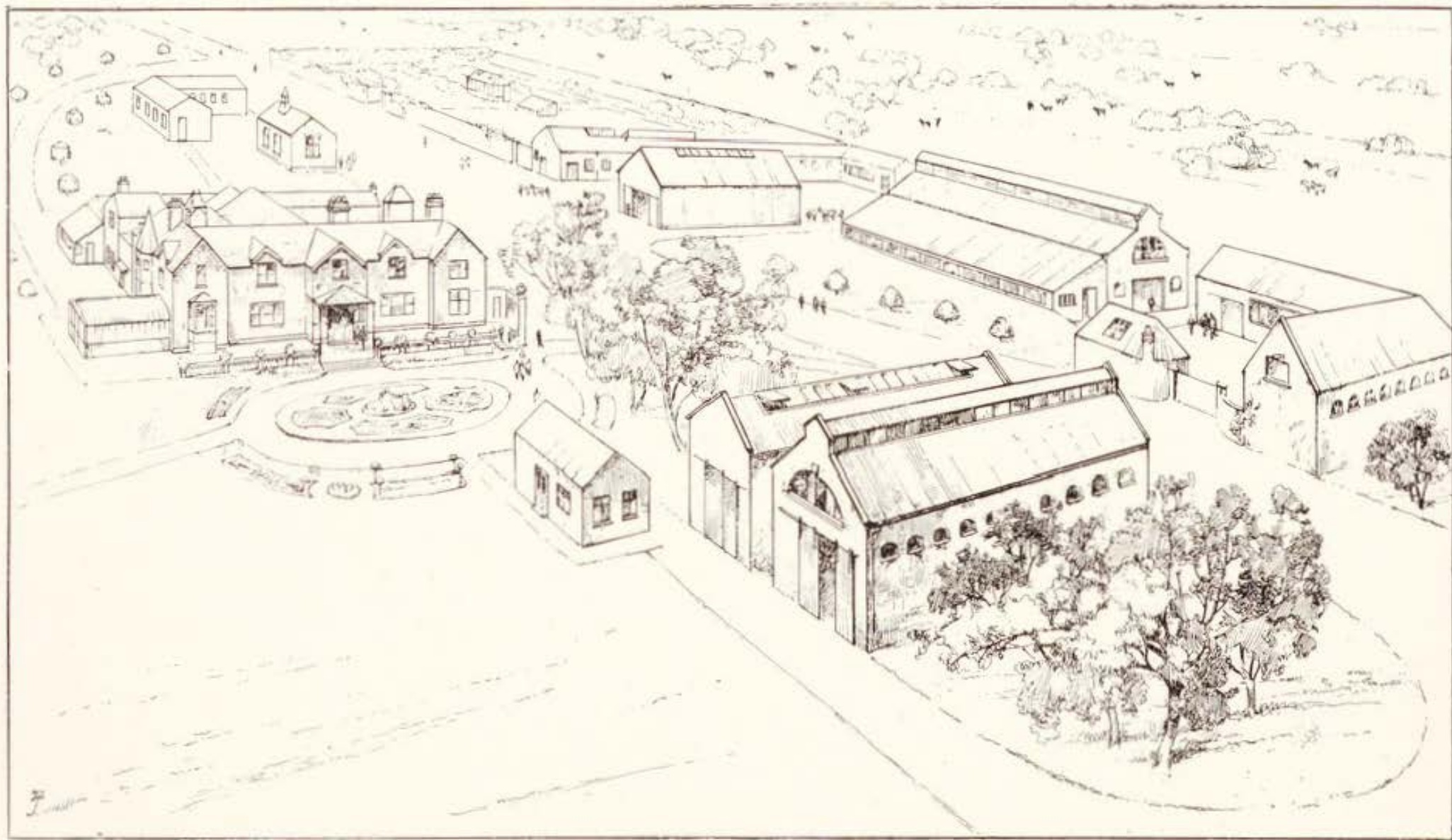
The activities of the Wellcome Physiological Research Laboratories cover a wide field of therapeutic investigation. The production of Anti-Sera and of bacterial preparations for therapeutic inoculation, and the researches in bacteriology and the mechanism of immunity necessitated by the progressive development of this comparatively new department of therapeutics, have been carried on side by side with investigations into the mode of action and the nature of the active principles of drugs of animal and vegetable origin, and the production by synthesis of substances identical with, or related to, the naturally occurring principles, in chemical structure and pharmacological action. Incidental to this pharmacological work has been the development of methods for controlling and standardising, by physiological means, the activity of potent drugs to which chemical methods of assay are not applicable.

### ANTI-SERA

A large series of Anti-Sera is now available for therapeutic use, and many have been first produced in these Laboratories. In addition to the antitoxic sera, possessing the power of neutralising the soluble toxins produced in artificial culture by certain organisms, or elaborated in the poison glands of animals, a large series of bactericidal sera has been produced by immunising horses against the actual bacterial substance of such pathogenic organisms as do not excrete their poisons. Early representatives of the two classes were Diphtheria Antitoxic Serum and Anti-streptococcus Serum, and these have maintained their position as the most widely and successfully used sera of their respective classes. These Laboratories were pioneers in the production of these sera in the British Empire.

Pioneer  
products of  
serum  
therapy





BIRD'S-EYE VIEW OF THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

## DIPHTHERIA ANTITOXIC SERUM, 'WELLCOME'

Since the foundation of the Wellcome Physiological Research Laboratories, a number of pamphlets, leaflets and reports dealing with therapeutic sera have been issued in connection therewith.

In the early editions, the origin, history and development of serum therapy were given, as well as an explanation of the meaning of the expression "antitoxin unit." It is scarcely necessary to repeat that the antitoxin unit adopted at the Wellcome Physiological Research Laboratories is the Ehrlich-Behring unit. Antitoxin  
unit It is not intended in these notes to take into view any of these aspects, but merely to bring up to date and present, in a succinct form, the progress of the treatment and the results obtained by means of it in more recent years. Diphtheria Antitoxic Serum is standardised by Ehrlich's method. In its earlier form the unit was based upon the power of completely neutralising the local as well as the general effects of the minimum dose of a given specimen of diphtheria toxin which sufficed to kill in 48 hours a guinea-pig weighing 250 grammes. The quantity which just sufficed for this was said to contain one-tenth of a unit. Thus, if 0.01 c.c. just completely protected, the serum was said to contain 10 units per c.c.

Samples of serum, carefully standardised by this method in the early days of its introduction, having been preserved, it soon became known that one-tenth of a unit of serum would not protect against ten times the minimal fatal dose of every filtered culture. An explanation of this curious fact has been put forward by Ehrlich. The filtered culture contains, besides the specific toxin, other bodies, Toxoids named by him "toxoids," which, while incapable of causing death in moderate doses, have yet the power of combining with the antitoxin and rendering this inert. The number of minimal fatal doses which one-tenth of a unit of serum will neutralise depends, therefore, on the ratio of toxoids to toxin in the filtrate. For the purpose of testing serum,



therefore, it is necessary to use a filtrate the neutralising capacity of which has been ascertained by careful titration with standard diphtheria antitoxic serum. This standard has remained unaltered throughout, thanks to the fact that some of the earliest serum tested has been carefully preserved.

In May, 1897, a change in the method of standardising serum was introduced by Ehrlich. The presence or absence of a local swelling at the seat of injection is no longer taken as the criterion of neutralisation, but the death or survival of the animal—four days being taken as the limit; and the test dose of filtrate is no longer that which is neutralised by one-tenth of a unit, but that which just suffices to kill the animal within four days when mixed with a whole unit of serum. This change did not introduce any alteration of the standard, because the test dose is ascertained by a series of experiments in which a unit of the standard serum is employed. It has the great advantage of being a purely objective method. For instance, no discrepancies can arise from difference of opinion as to what is to be considered as the smallest local swelling worthy of notice. All errors of measurement, also, are reduced ten per cent.

The new  
method

#### STATISTICS OF TREATMENT BY DIPHTHERIA ANTITOXIC SERUM

Amongst the most valuable English statistics on the subject are those compiled by the Medical Officers of the Metropolitan Asylums Board; and from them may be gathered the following figures: In 1894, only a small number of cases were treated with antitoxin. In 1895, 61·8 per cent., and in 1896, 71·3 per cent., of the total cases were treated with antitoxin, it not having been employed in moribund or hopeless cases, nor in those which were doubtful in nature, or so mild as not to require any specific treatment.

Statistics

The accompanying table shows clearly a regular percentage decrease in mortality *pari passu* with a regular increase in the percentage of cases treated with antitoxin:—



# CASES OF DIPHTHERIA TREATED IN THE HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD

Year	Antitoxin-treated cases.				Mortality.	
	Per cent.				Per cent.	
	of all cases				of all cases	
1888-95	...	...	—	...	...	28·5
1894	...	...	—	...	...	29·6
1895	...	...	61·8	...	...	22·5
1896	...	...	71·3	...	...	20·8
1897	...	...	80·2	...	...	17·5
1898	...	...	81·4	...	...	15·5
1899	...	...	87·8	...(not quite)	...	14·0
1900	...	...	88·4	...	...	12·2
1901	...	...	86·5	...	...	11·1
1902	...	...	88·0	...	...	11·0
1903	...	...	89·2	...	...	9·69
1904	...	...	85·5	...	...	10·0
1905	...	...	88·4	...	...	8·2
1906	...	...	84·0	...	...	8·99
1907	...	...	91·2	...	...	9·6

The Colchester epidemic in the summer of 1901 furnishes evidence of especial weight (*Journal of Hygiene*, April 1, 1902). Up to a certain date, the cases in hospital were treated with antiseptic sprays. These in all amounted to 81, of whom 21 died, giving a case mortality of 25·9 per cent. After this date, all the cases were treated with antitoxin without antiseptic spray, and of 119 so treated, 7 died. The case mortality of this group was therefore 5·8 per cent.

The  
Colchester  
epidemic

The inference that antitoxin thus saved many lives is much strengthened by the fact that of 37 cases treated at home before the date indicated, 10·8 per cent. died, whilst of 48 cases treated at home after this date, 14·5 per cent. died. This concurrent evidence clearly shows that the severity of the disease was not declining at the time when such good results were being obtained at hospital with antitoxin.

## CURATIVE AND PROPHYLACTIC DOSES OF DIPHTHERIA ANTITOXIC SERUM

Experiments on animals have shown that the amount of antitoxin which is necessary to save life increases at a rapidly accelerating rate according to the length of time which elapses between the injection of the diphtheria virus and the administration of the curative serum, and this is amply confirmed by the results of experience in hospitals. Thus Wernicke and Behring, having determined the amount of antitoxic serum necessary to save from death a guinea-pig which had immediately before been injected subcutaneously with a lethal dose of diphtheria toxin, found that ten times this amount was required to effect a cure if this administration was deferred until eight hours after the injection of the toxin; whilst twenty-four hours afterwards, fifty times the initial quantity was necessary.

The efficacy of antitoxin given early in the disease, and the urgent necessity of beginning the treatment at the earliest possible moment, are well illustrated by the following statistics from the Brook Hospital, published in the Metropolitan Asylums Board Report for 1902:—

Day of the disease on which treatment commenced	Mortality per cent.					
	1897	1898	1899	1900	1901	1902
First ... ..	·0	·0	·0	·0	·0	·0
Second ... ..	5·4	5·0	3·8	3·6	4·1	4·6
Third ... ..	11·5	14·3	12·2	6·7	11·9	10·5
Fourth ... ..	19·0	18·1	20·0	14·9	12·4	19·8
Fifth ... ..	21·0	22·5	20·4	21·2	16·6	19·4



The serum from normal horses may cause rashes and rise of temperature in susceptible individuals, but apart from this the only limit to the administration of antitoxin is the bulk of the fluid in which it is contained. Therefore a large dose should be given at the earliest possible moment, whenever there is reason to suspect diphtheria; and in cases which progress unfavourably, the treatment may be repeated in about six hours, giving at least double the initial dose.

Limit of  
dose

Repeated  
injections

Far less, however, is to be expected from repeated injections at intervals than from one full dose given at the outset of the attack. In no case should either the administration of antitoxin or the repetition of the dose be delayed until the result of a bacteriological examination has been made known.

**CURATIVE DOSE.**—The dose for a case of moderate severity should not be less than 2000 units, and in severe cases 4000 units at least should be given at once, and larger doses are recommended by many authorities. These doses should be given irrespective of age, because diphtheria is very fatal to young children. If any difference were to be made, adults would have the smaller doses, as the prognosis in diphtheria improves with the age of the patient.

Dosage  
irrespective  
of age

As the question of the keeping-quality of sera is frequently raised, it may be stated generally that, provided they are kept in a cool place at a fairly constant temperature, and protected from light, these sera may be relied upon to remain practically unaltered for at least a year from the date of issue. They are issued in phials hermetically-sealed in the blow-pipe flame, a method which greatly favours this result.

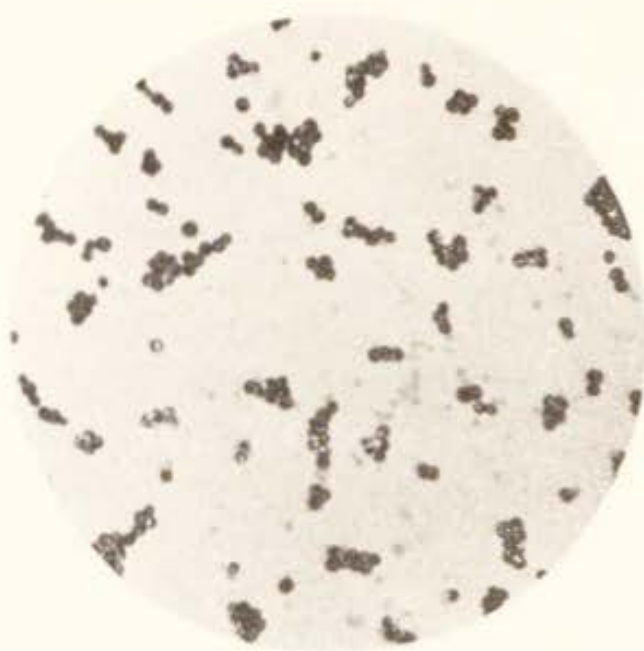
Keeping-  
quality of  
serum

**PROPHYLACTIC DOSE.**—Protective injections, of at least 1000 units, may be administered to the rest of the family whereof one member has been attacked with diphtheria. It must be borne in mind, however, that the prophylactic action gives only a temporary protection.

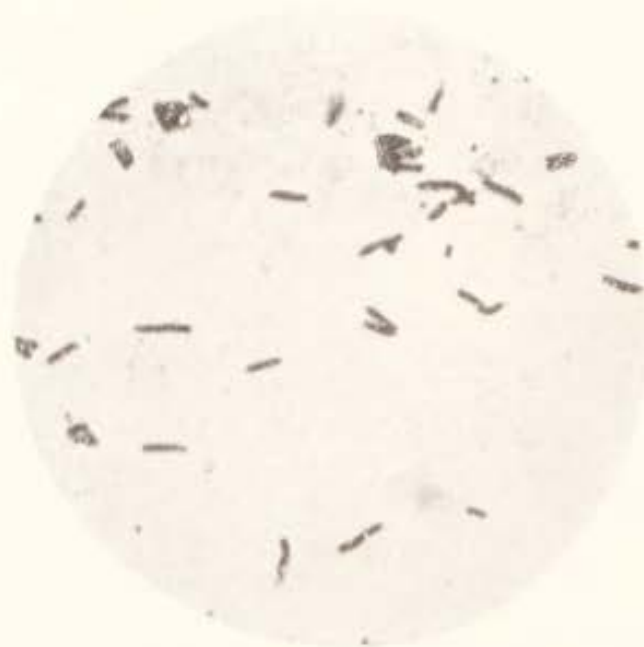
Prophylaxis

protection





*Staphylococcus pyogenes*  
Magnification 1000 diam.



*Bacillus tuberculosis*  
Magnification 1000 diam.

against attack to the person so treated, the protection thus conferred lasting probably about three weeks at the most. The whole of the contents of one phial may be injected in each case. It should be carefully noted that, when once a phial is opened, it is highly undesirable, owing to risk of contamination, to reserve a portion of the contents for a future occasion. It should all be used at once on one or more patients.

## BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA

The injection of antitoxin at the earliest possible moment in the course of the disease may be a matter of such importance to the patient that this should be done on the clinical evidence alone where the diagnosis is doubtful; but immediate steps should be taken to confirm the diagnosis by bacteriological methods.

## ON SERUM ERUPTIONS

In some cases, the administration of a curative serum is followed by rashes and transitory rise of temperature; occasionally by pains and swellings in the joints. These accidents have been shown to be also caused by normal horse serum, so that they are not to be attributed to the anti-bodies in the serum. The introduction of more highly potent serum, allowing a diminution of the bulk to be injected, has rendered these complications less frequent. They arise for the most part during convalescence, and do not appear to have resulted in any case in death, though they have doubtless sometimes retarded recovery.

Normal horse  
serum

The following account of this subject, by Dr. Arthur Stanley, is quoted from the *British Medical Journal*, February 15, 1902. It deals with 500 cases of diphtheria at the North-Western Hospital of the Metropolitan Asylums Board, all of which were treated with antitoxin: "The diagnosis of doubtful cases was



*Streptococcus erysipaelatis*  
Magnification 1000 diam.



*Bacillus coli communis*  
Magnification 1000 diam.



verified by bacteriological examination. The total number of deaths in the series was 80, a death-rate of 16 per cent. The antitoxin was injected in quantities usually of 4000 Behring antitoxin units immediately after admission, but varied from 1000 to 30,000 units according to the severity of the case and the time of admission after onset. No constant relation between the quantity of antitoxin given and the frequency of eruption was noted, but in one case, where antitoxins from two different sources were injected at the same time, two separate antitoxin rashes were observed; the first occurring ten days, and the second fourteen days, after the giving of the antitoxins. No special sources of antitoxin were found to cause a preponderating number of eruptions, and the eruptions occurred throughout the two years I was working with diphtheria.

Different  
sources of  
antitoxin

"Skin eruptions appeared in about a fourth of the cases. The period of onset was usually during the second week after the giving of the antitoxin. The eruption met with was not so peculiar as to be pathognomonic, but was sufficiently marked, especially in relation to the general symptoms, as to constitute a distinct type.

"There may be a little desquamation after severe and prolonged erythemata, but there is rarely any confusion between true scarlet fever occurring in the course of diphtheria and eruptions produced by antitoxin.

"The general symptoms, beyond a rise of temperature of some  $3^{\circ}$  F. and its accompanying malaise, are not marked. Pains in the joints have been frequently described, but were not observed in one of these 500 cases. This result may have been due to the cases being chiefly among children. The only marked case in which pain was present was that of a girl of 13, who had frontal headache and lumbar pain extending down the thighs. She had a marginate erythematous eruption, and the temperature rose to  $101^{\circ}$  F.

Temperature

"Transient early erythematous blushes, and also urticaria, often occur soon after the injection of antitoxin, but these may be generally considered to be of traumatic origin, and not to be related to any specific property of the antitoxin. The area of skin, before injection, was sterilised with soap and carbolic lotion, and the injection syringe was boiled before each injection. No abscess at the seat of injection occurred.

"The occurrence of an antitoxin eruption during the course of a case of diphtheria did not appear to influence the prognosis seriously, though it cannot but be held that any febrile disturbance of the heart would tend to have a harmful effect. No case, however, was observed where fatal heart-failure was precipitated by the occurrence of an antitoxin eruption."

A long experience of reports received at the Wellcome Physiological Research Laboratories, leads to the conclusion that idiosyncrasy of the patient is more responsible for the varying severity of the eruption and other symptoms attributable to serum than the use of serum from different horses.

It seems probable that a considerable mitigation of the inconvenient symptoms which are liable to follow the use of serum will be rendered possible, in the case of Diphtheria Antitoxic Serum, by the methods of fractionation and purification of the antitoxic globulins which are coming into use. Not only by this treatment are those proteins of serum removed, which, though devoid of antitoxic value, play a large part in the production of the unpleasant after-effects, but a considerable concentration of the antitoxic element is rendered possible. The reduction in volume of the necessary injection thus effected is a great practical advantage.

Several observers have found the administration of calcium salts efficacious in preventing or dispelling serum-rashes.



An interesting light has in recent years been thrown on the susceptibility of some patients to the toxic action of serum, by the observation that the injection of a small quantity of horse-serum into an animal renders it liable to fatal intoxication by a large dose given upwards of ten days later. Goodall has shown (*Journal of Hygiene*, 1907) that an injection of serum may render a patient liable to severe constitutional effects when another injection is given even two years later; and interesting cases are on record in which patients have had progressively more severe symptoms as a result of three or more successive injections of serum separated by intervals of years. It must be borne in mind, however, that cases of natural abnormal susceptibility to other substances are not uncommon. Eggs, strawberries, shell-fish, etc., produce in certain individuals, when taken in comparatively minute quantities, symptoms very similar to the serum rashes.

Super-  
sensitivity

#### ANTIVENENE

This serum continues to maintain its claim to be a trustworthy remedy for snake-bite, if injected in large quantity, not later than three or four hours after the bite.

A case reported in the *Lancet* of January 5, 1901, illustrates the efficiency of fresh antivenom serum, even after the appearance of general symptoms, and in the absence of any local treatment except sucking the wound. The serum was injected into each flank, about 3½ hours after the bite.

Antivenene

'Wellcome' Brand Antivenom Serum is standardised against the venom of the Cobra and Russell Viper (*Daboia*), and is the result of immunising horses against these and venoms from representatives of other genera, including the Krait (*Bungarus*) and Sea-snake (*Enhydrina*). It is, therefore, a polyvalent antivenene, which alone could be regarded as of more than local applicability.

The local treatment of snake-bite is very important, and depends upon the fact that "it is possible, after even half an



hour or more from the time of the bite, a considerable portion of the venom may still be unabsorbed at the site of the injection, and so may still be destroyed" by suitable means (*Lancet*, February 6, 1904, *page* 355).

The first thing to do in every case where the position of the bite makes it possible, is to place a ligature (rope, cord or handkerchief) round the limb between the wound made by the fangs of the snake and the body, and wash the wound thoroughly, encouraging it to bleed.

The wound should then at once be bathed with a fresh solution of chloride of lime (1/60 in distilled water), or with a 1 per cent. solution of chloride of gold, with the object of destroying *in situ* any venom which may remain unabsorbed (Calmette, Institut Pasteur de Lille).

Or a small incision may be made through the wound, and pure crystals of permanganate of potassium, moistened with a little water, rubbed into it. (Captain L. Rogers, I. M. S., quoting Brunton, Fayrer and others. *Lancet*, February 6, 1904, *page* 354).

The successful carrying out of either of these procedures depends upon an intelligent appreciation of the exact position of the poison, which may be indicated by a local extravasation of blood-stained serum.

The following important considerations should be specially noted :—

In severe cases, and in others where some time (two or three hours) has elapsed after the bite, the serum should, if possible, be injected intravenously.

The dose should not be less than 10 c.c., whether injected subcutaneously or intravenously. The snake-bite should be very carefully cleansed and disinfected before injecting the serum.

"Artificial respiration may . . . be of great value while medical aid or antivenene is being sent for. . . ."

*Lancet*, February 6, 1904, *page* 352.



## ANTI-TETANUS SERUM

This serum, like anti-diphtheria serum, is antitoxic in its action. Although it may be stated that some cases of this disease have been distinctly benefited by its administration, in many others the serum has failed. A consideration of the nature of the disease shows why this is so, and why, even more than in diphtheria, it is necessary to commence the treatment at the earliest possible moment.

Anti-tetanus  
serum

Tetanus is a disease caused by the action of the toxin of the bacillus tetani upon the central nervous system; the toxin, as in the case of diphtheria, being produced in some local lesion, the seat of the growth and multiplication of the specific organisms. In tetanus, the toxin makes its way to the motor ganglion cells, partly by way of the nerves in connection with the affected part, and partly by way of the blood.

Unfortunately, the convulsive stage of tetanus is an indication not of the commencement of the disease, as is the appearance of a membrane in diphtheria, but of a comparatively advanced stage of the disease, and of the occurrence of serious damage to the nervous system. The remedy should therefore be administered immediately on the manifestation of any distinct symptoms, possibly tetanic, such as difficulty in opening the mouth, stiffness in the neck, or the onset, some days after the accident and without obvious cause, of an acute pain at the point of injury; and in view of the fact that the tetanus bacillus is localised and restricted to the seat of infection, attention is called to the advantage, in cases of punctured wounds, of excising freely and thoroughly the tissues around. The curative dose of anti-tetanus serum may vary from 50 c.c. to 100 c.c., in one dose or more, but, as a prophylactic in the treatment of wounds contaminated with dust, dirt, soil, etc., a smaller dose of 10 c.c. is said to be sufficient. This protection, however, does not persist longer than five or six weeks. It should be remembered in considering doses, that it is impossible at present to state

Dose



definitely the quantity of serum necessary to meet a given case, for so much depends on the severity of the attack, and the stage at which treatment is begun. It is, therefore, better to give a large dose at the commencement. The old medicinal treatment should not be neglected.

The records of 98 cases treated by serum were collected by Weischer (*Münch. Med. Woch.*, Nov. 16, 1897). Of these, 41 died, the mortality per cent. thus being 41·8.

The serum has been injected directly into the substance of the brain with success, and it has been claimed that this method gives the best results. A full account of this, giving details of the operation, may be found in the *British Medical Journal*, Jan. 7, 1899.

Whilst as a curative agent, the serum has thus proved a relative failure, it has proved a most valuable prophylactic in the case of wounds infected with soil in districts where tetanus abounds.

## BACTERICIDAL SERA

**Anti-streptococcus Serum.**—The disappointing results which were obtained in many cases in the early days of the preparation of anti-streptococcus serum were doubtless due in part to the absence, at the time, of any adequate classification of the streptococci, with the result that a serum prepared against one strain of streptococcus was tried for a wide range of different infections, which would now be recognised as due to specifically distinct organisms.

**Polyvalent Anti-streptococcus Sera.**—A prolonged and serious attempt has been made in conjunction with clinical observation and laboratory tests to obtain specific polyvalent anti-streptococcus sera. Cultures were obtained from as many cases as possible of a particular disease, taken from such situations and under such precautions as to make it probable that the organisms were causally associated with the disease. The following are details of the origin of the organisms used in producing some of the 'Wellcome' Sera:—



**Anti-streptococcus Serum (Puerperal Fever).**—Cultures from 26 cases, mostly fatal, obtained from the uterus or the spleen.

**Anti-streptococcus Serum (Erysipelas).**—Cultures from 3 cases.

**Anti-streptococcus Serum (Scarlet Fever).**—Cultures from 9 cases, several of which were fatal, obtained from the blood, the spleen and the knee-joint.

**Anti-streptococcus Serum, Rheumatism (Micrococcus Rheumaticus).**—Cultures from 6 cases, obtained from the knee or shoulder-joint.

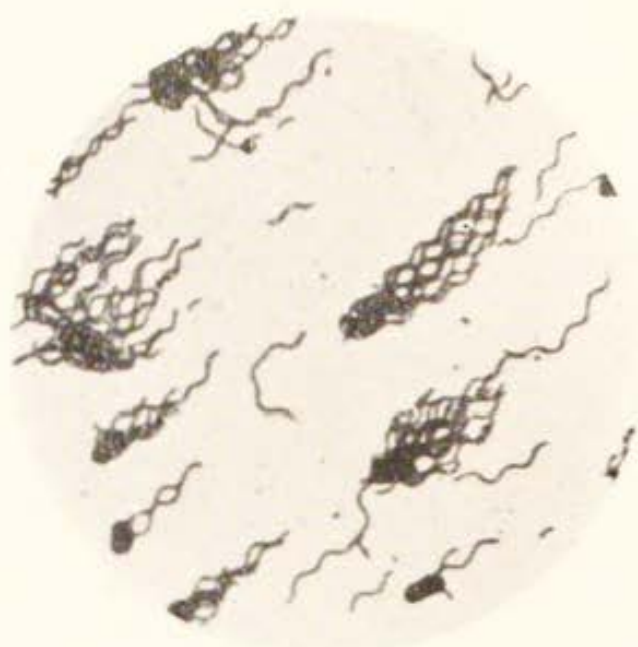
**Anti-streptococcus Serum, Polyvalent.**—The horses are immunised against all the strains mentioned above, and, in addition, with strains obtained from 2 cases of Angina Ludovici and 6 cases of Ulcerative Endocarditis (from blood cultures obtained during life), and with 10 strains of Streptococcus Pyogenes from Pyæmia, Mammary Abscess, Acute Peritonitis, Suppurative Arthritis, etc.

This "shot-gun" serum has found more extended application than any of those prepared from organisms associated with a particular clinical picture, and the recorded cases in which its use has been attended with beneficial results are now too numerous to leave much room for doubt of its efficacy in streptococcal infections.

A much more scientific classification than that based upon the symptoms of the case from which the organism originated has been made possible by Gordon's classification of the streptococci in accordance with their habit of growth in culture media containing various sugars. A serum has been prepared by immunising against nine strains of streptococci isolated from various cases and all identified by their behaviour when grown in sugar media as belonging to Gordon's Pyogenes group IIb. The result of the use of this serum in an acute case of streptococcal infection from a post-mortem wound was such as to encourage belief in its value.



Bacillus diphtheriae  
Magnification 1000 diam.



Bacillus typhosus  
(Stained to show flagella)  
Magnification 1000 diam.



A point to be specially borne in mind is that all cases of puerperal fever, spreading inflammation of the skin or subcutaneous tissues, are not necessarily associated with the presence of actively growing streptococci. They may be due to some quite different organism, and so would not be benefited by injections of anti-streptococcus serum. The importance of ascertaining by bacteriological tests the kind of organism at work in all such cases is thus manifest.

Septicæmia  
due to  
bacillus or  
diplococcus

Other bactericidal sera which have been prepared at the Wellcome Physiological Research Laboratories are:—

**Anti-Anthrax Serum.**—A serum prepared by Sclavo has been used with success in cases where no surgical interference was undertaken. It has been prepared at these Laboratories by injecting horses and asses with killed broth cultures of virulent *Bacillus anthracis*.

**Anti-coli Serum.**—In the preparation of this 20 strains of *Bacillus coli* are used, obtained mostly from the peritoneum in fatal peritonitis and the uterus in puerperal fever due to *B. coli*.

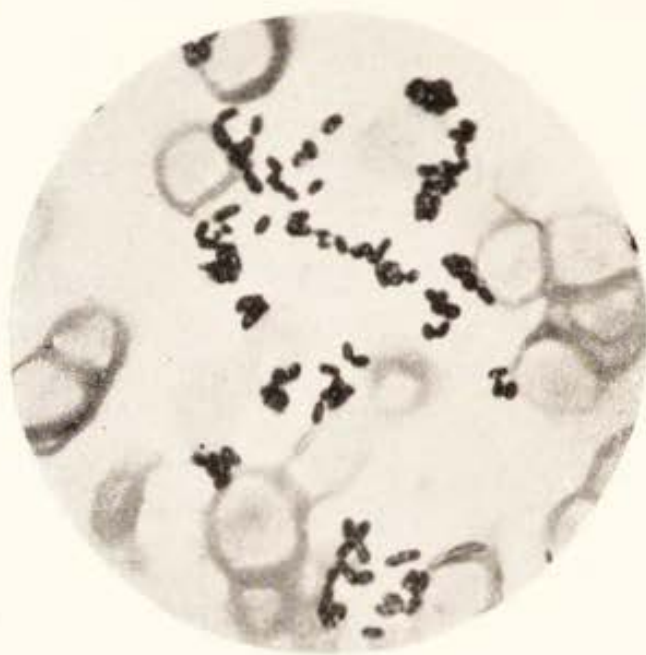
**Anti-staphylococcus Serum.**—This is also a polyvalent serum, cultures of staphylococcus albus, aureus, citreus and hæmorrhagicus, 15 in all, and all obtained from pus, being used in its preparation.

**Anti-dysentery Serum.**—Prepared by injecting killed cultures of Shiga's, Flexner's and Kruse's bacilli, 6 strains in all being used.

**Anti-gonococcus Serum.**—This is prepared from strains obtained from urethritis and gonorrhœal conjunctivitis, and is described as having given good results in the acute stage of the disease.

**Anti-meningococcus Serum.**—Four strains of the diplococcus of Weichselbaum are used.





Micrococcus rheumaticus  
Magnification 1000 diam.



Bacillus anthracis  
Magnification 1000 diam.

## ENDOTOXINS AND ANTI-ENDOTOXINS

Endotoxin is the name given to the toxins contained within micro-organisms in contra-distinction to toxins obtained in culture filtrates. Various methods of obtaining endotoxins have been used, but the best is probably that devised by the late Allan Mcfadyen. He found that organisms when subjected to a very low temperature, such as that of liquid air, still retain their vitality, so that, when again brought to the normal temperature, they are found not to have suffered in any essential respect. At this low temperature, the organisms are readily broken up by grinding. Extracts from this material are obtained in dilute solution of caustic alkali. An elaborate grinding apparatus was devised by Mcfadyen and Rowland for this purpose. The juice so obtained is filtered through a Berkefeld filter to remove the uninjured organisms. The quantity of dissolved material is approximately shown by the amount of precipitate obtained on acidulating with acetic acid.

Method of  
preparation

Anti-endotoxins are obtained by injections of endotoxins into animals in a similar manner to that used for other anti-sera. Mcfadyen, in the case of typhoid, claimed to have prepared, by this means, a very much stronger anti-serum than has been found possible by the injection of the intact organisms. He also prepared an anti-endotoxic cholera serum by injecting goats intravenously. His results show a very high degree of both antitoxic and bactericidal power in the sera so obtained.

Recent clinical trials of an anti-typhoid serum prepared at the Wellcome Physiological Research Laboratories by Mcfadyen's method have given very promising results.

## BACTERIAL VACCINES

While it seems clear that, even with the methods of preparation which have as yet been fully tried, the anti-bacterial sera have a certain value, it cannot be denied that they have not, in the same degree as the antitoxic sera, fulfilled the early hopes



of their efficacy. Meanwhile, the technique for estimating phagocytic activity introduced by Leishman, and its application and development at the hands of Wright and others, has given a noteworthy impetus to the method of actively immunising the patient against the organism attacking him, by injection of very small doses of a killed culture of the same organism. The new method of controlling the effect of an injection, by determination of the "opsonic index," has not only given a stimulus to the extensive use of vaccination with killed cultures in various chronic suppurations and localised inflammations; it

Opsonic  
index

has also, to a remarkable extent, reinstated in the confidence of the medical world the tuberculin (T. R.) of Koch, which had been brought into discredit by the unfavourable results of its early application, in doses which, as the new methods of control indicate, were much too large for safety or benefit. While Wright's opsonic method has undoubtedly been largely responsible for the revival of interest in specific inoculation and the widening of its scope, its complicated and specialised technique has probably had a deterrent effect on the spread of the method in general practice. At present there is a perceptible tendency to doubt the need for the elaborate and difficult opsonic determination, and its adequacy as a control. If this movement continues in the direction of reliance on constitutional indications or a more simple phagocytic determination, it will undoubtedly lead to a wider use of these so-called bacterial vaccines.

Vaccines are usually prepared by suspending in saline solution organisms grown on nutrient agar or some such solid medium, and heating for half an hour at 60° C. They are standardised according to the number of micro-organisms present in 1 c.c. The counting may be done by the absolute method, *i.e.* direct counting of a known dilution in a Thoma-Zeiss apparatus by a method similar to that employed in enumeration of red blood corpuscles. This is a tedious process, and it is more usual to employ Wright's or Harrison's method. Wright's method is to mix the vaccine with fresh blood in known proportion, make a film



of the mixture, stain and then compare the total number of red corpuscles in a large number of fields with the number of organisms in the same fields. If the number of red blood corpuscles per cubic mm., the proportion by volume of blood and vaccine, and the ratio of the counts are known, it is a matter of simple calculation to determine the number of organisms present per c.c. of vaccine.

Methods of  
standard-  
isation

The objection to this method is that many organisms may be dissolved by the bacteriolysins of the blood plasma. To overcome this difficulty, Harrison washes the blood corpuscles by several centrifugalizations with citrated saline to remove all the blood fluids, determines by a Thoma-Zeiss count the number of cells present in the suspension of red corpuscles in saline, and then proceeds as in Wright's method. It is of considerable value to control the counts by means of the dried weight, which, for each organism used, bears a fairly constant ratio to the bacterial count.

**Typhoid vaccine** is used only as a prophylactic, and not at present as a curative, agent in typhoid fever. To secure immunisation, two doses are given. The first dose consists of 0.5 c.c. of vaccine, equivalent to 500 million bacteria. The second, **given ten days later**, is 1 c.c., equivalent to 1000 million bacteria.

After the first, and, to a much smaller degree, after the second inoculation, local and constitutional symptoms may occur, the severity of the local symptoms usually varying inversely as that of the constitutional. The local symptoms, present at the site of injection, are redness, swelling, pain and tenderness.

The following vaccines have been successfully employed therapeutically :—

### **Staphylococcus Vaccine, Mixed**

Containing *Staphylococcus pyogenes aureus*, *albus* and *citreus*.

This vaccine may be employed in various staphylococcic infections, such as pustular acne, furunculosis, carbuncle, sycosis, blepharitis and localised abscesses.

The initial dose is usually 500 million organisms. A second dose may be given in a week's time, or, if the constitutional effects of the first dose have been slight and evanescent, 1000 million organisms may be deemed necessary. Many authorities recommend the use of much smaller doses.

### **Staphylococcus Vaccine, Aureus**

Containing *Staphylococcus pyogenes aureus*.

This vaccine is employed in the treatment of acne and sycosis. It should only be used when the infection has been shown to be due to *Staphylococcus aureus* alone.

The dose usually employed is similar to that in the case of Staphylococcus Vaccine, Mixed.

### **Gonococcus Vaccine**

Containing *Micrococcus gonorrhææ*.

This vaccine may be used in the chronic and later stages of gonorrhœa, in gleet and gonorrhœal prostatitis, and also in such generalised infections as gonorrhœal arthritis. Good results have also been obtained in the acute stages of gonorrhœa.

The initial dose recommended by different authorities varies considerably: in some cases only 5 million organisms, and in other cases as many as 250 million are injected as an initial dose. Subsequent dosage is regulated by the constitutional effect. In infection of a delicate organ such as the iris, very small doses are required.

### **Streptococcus Vaccine, Polyvalent**

Containing over 60 strains of streptococci obtained from the following sources: erysipelas, scarlet fever, puerperal fever, rheumatic fever, septicæmia, angina, pneumonia and ulcerative endocarditis.

This vaccine may be used in all forms of localised or generalised streptococcic infection, *e.g.* abscesses, septicæmia, pyæmia, otitis media, endocarditis, peritonitis of streptococcic origin, puerperal septicæmia, and erysipelas.



The dose is from 20-50 million organisms, and it may be administered at intervals of from one to three weeks, according to the reaction produced.

### **Bacillus Coli Vaccine**

Containing the *Bacillus coli communis*.

This vaccine may be used in all forms of coli infection of the bladder, ureters, kidneys and peritoneum; in appendicitis due to the bacillus coli; in mucous colitis, and in coli infection of the uterus and gall bladder.

The initial dose is 5-15 million organisms, which may be repeated, or increased, according to the reaction produced, from 2 to 10 days later.

### **Pneumococcus Vaccine**

Containing various strains of the *Diplococcus pneumoniae* (Weichselbaum).

This vaccine is used in pneumococcic infections of all kinds, pneumonia, empyema, pericarditis, endocarditis, septicæmia, meningitis and pneumococcic infections of joints.

The usual dose is 10-50 million organisms, which may be repeated, according to the reaction produced, every 36 or 48 hours.

### **Acne Vaccines**

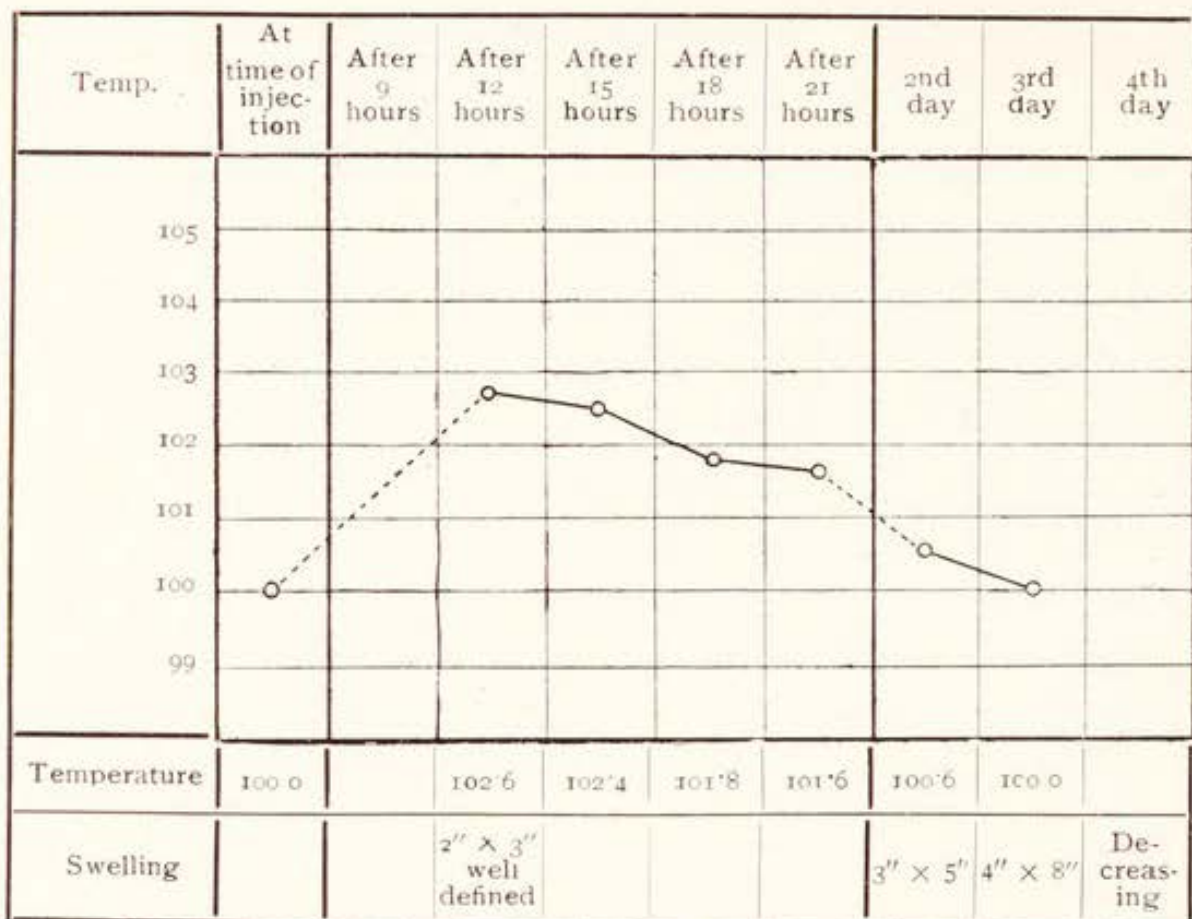
Recent research has shown that acne is primarily due to infection by a micro-organism known as the Acne Bacillus. In the early stage, when the eruption is papular in character, a bacteriological examination of the comedones or "black-heads" shows a pure acne bacillus infection. Later on, infection by the staphylococcus occurs, giving rise to the acne pustule.

A vaccine is chosen for treatment, therefore, in accordance with the stage and nature of the infection.

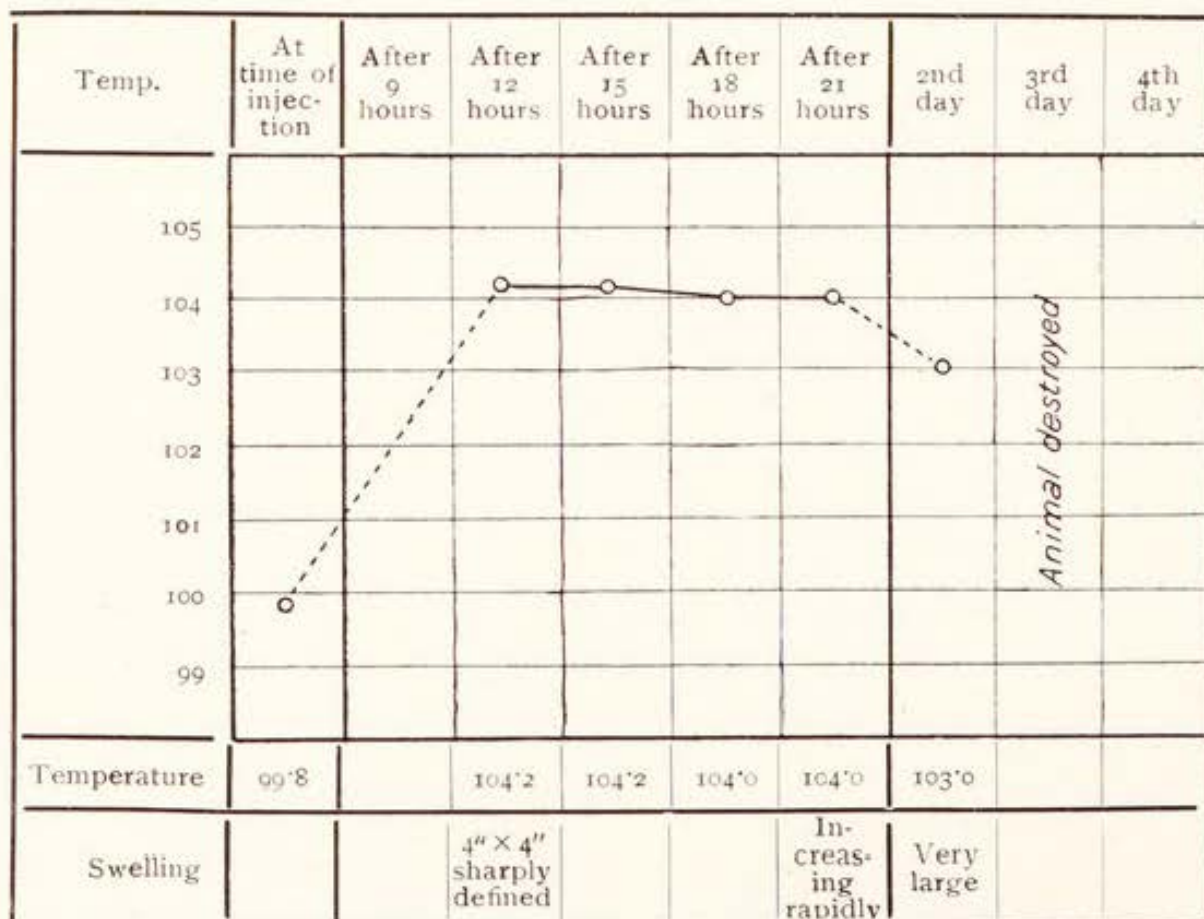
### **Acne Bacillus Vaccine**

This is intended for the treatment of the papular form of acne. In this form comedones are abundant, but suppuration has not yet occurred. There is no febrile reaction after the injection of this vaccine, but if the dose be excessive a prolonged negative phase results, in which a fresh crop of





Reaction to mallein of a healthy horse immunised against Diphtheria toxin. The horse was subsequently killed and the absence of glanders confirmed by post-mortem examination



Reaction to mallein of a glandered horse

acne papules appears. However, these papules disappear by subsequent injections.

### **Acne Vaccine, Mixed**

This is for use in ordinary cases of acne, usually characterised by the presence of comedones and pustules. A bacteriological examination of such cases shows a mixed infection by the acne bacillus and the staphylococcus (*aureus*, *albus* or *citreus*).

**DOSE.**—The initial dose is 4 or 5 million acne bacilli with or without staphylococci, according to the nature of the case. Subsequent dosage is regulated by the local effect. Larger doses than 10 million acne bacilli can rarely be tolerated.

In the pustular and furuncular forms of acne without comedones, Staphylococcus Vaccine, Mixed, is used.

### **Tubercle Vaccine (Human or Bovine)**

An emulsion of killed tubercle bacilli of human or bovine origin.

Treatment should commence with a dose of 1 c.c. of emulsion containing 0.0001 mgm. dried tubercle bacilli, increasing to 0.0005 mgm., or even more, according to the indications of the opsonic index, or the clinical symptoms.

## **MALLEIN AND TUBERCULIN**

**Mallein** is a bacterial filtrate used in the diagnosis of glanders. It is prepared from cultures of the organism causing glanders (*Bacillus mallei*) which have been grown for about six weeks on bouillon containing glycerin, sterilised by heat and filtered. A small quantity of some antiseptic, such as phenol, is added as a preservative. When injected under the skin of a normal horse, mallein produces little or no apparent effect, but should the horse be suffering from glanders a large swelling forms at the seat of injection, and this is usually accompanied by a rise in the temperature of the animal.

Recent investigation at these Laboratories (Südmersen and Glenny, *Journal of Hygiene*, 1908) has shown that many non-glandered horses, if they have been immunised against other



bacterial products, give a reaction to mallein in some ways similar to that given by glandered animals.

The size of the swelling produced in such cases appears to depend on the degree of immunity. Thus, in the case of a group of horses injected with diphtheria toxin, 6 of which were highly immune, all gave large local reactions; out of 7 moderately immune, 4 gave large swellings; and in 4 horses in which the serum had a low antitoxic value, only small mallein reactions were produced. The local swelling obtained in such healthy, immune horses differs very markedly from that given by the glandered animal in its rapid disappearance. Similarly, when a rise of temperature is produced by mallein in a healthy horse immunised against other bacterial products, this is smaller, attains its maximum more rapidly, and is far less persistent than the febrile reaction to mallein of a horse suffering from glanders. These differences are illustrated in the charts on *page 234*.

Similar results were obtained upon immune horses with tuberculin and several other bacterial products, such as those obtained from *Streptococcus*, *Bacillus coli communis*, *Bacillus typhosus*.

**Tuberculin ("Old" Tuberculin).**—Tuberculin for veterinary diagnostic use is prepared from bacillus tuberculosis by a method similar to that used in the production of mallein from bacillus mallei. For the diagnosis of tuberculosis in cattle the temperature reaction is of much greater importance than the local effect of the injection. A rise in temperature of  $2.5^{\circ}\text{F}$ . within 12 to 15 hours of injection is usually considered sufficient to warrant the condemnation of an animal.

**Ophthalmo-Tuberculin Reaction.**—The reaction is produced by purified tuberculin obtained by the alcoholic precipitation of ordinary tuberculin. If a small quantity of the precipitate, dissolved in water, be applied to the surface of the conjunctiva, a marked reaction results in the case of tuberculous



individuals. It is too early to decide definitely in favour of this method of diagnosis over the old one of injection, since cases have been reported where some inconvenience due to persistence of inflammation has arisen as a consequence of the application to the eye. Cases have also been reported in which reactions have been obtained in non-tuberculous subjects.

Purified  
tuberculin

Several methods of diagnosis have been recommended, in which the tuberculin is applied to the scarified or otherwise prepared skin, and which depend likewise on the increased susceptibility to tuberculin of the tuberculous subject.

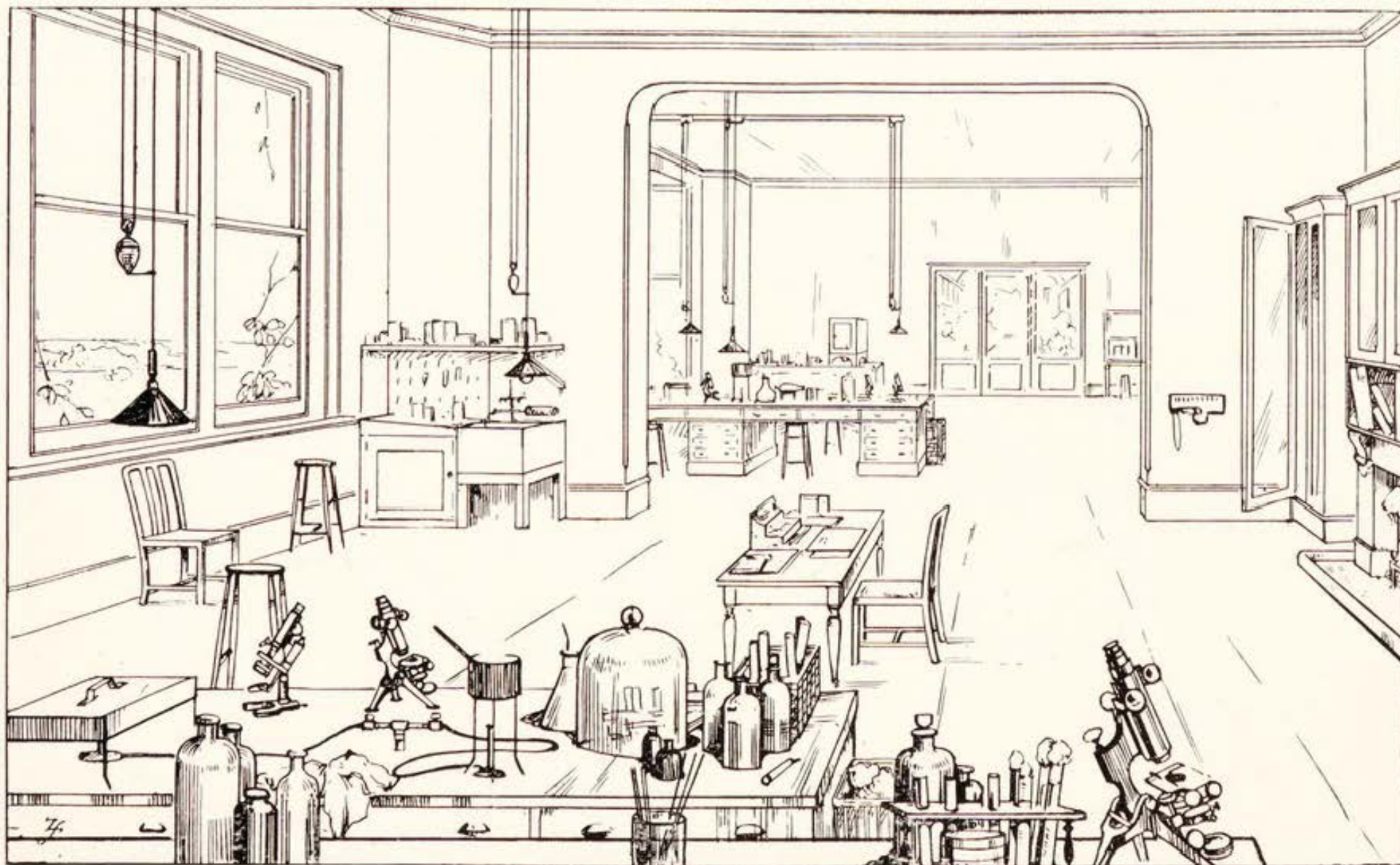
### THE SERUM DIAGNOSIS OF TYPHOID FEVER

A series of investigations, made in different countries, has brought to light the fact that the serum of an animal rendered highly immune to the typhoid bacillus has a marked action upon the organisms, causing them to lose their motility, and to become collected together into little masses, which rapidly sink to the bottom of the tube containing the mixture of serum and culture.

Following this, the fact that the serum of patients suffering from typhoid fever usually gives a reaction with cultures of the typhoid bacillus, similar to, though less marked than, that given by the serum of animals immunised by the bacillus, has been confirmed by a host of observers. This affords evidence of great weight that the bacillus is really the cause of typhoid fever, and it also affords a valuable method of diagnosis.

Typhoid

In the serum of those suffering from typhoid fever, the reaction is said to have been observed as early as the fourth day. Usually it appears about the beginning of the second week, but it is undoubtedly often absent at this period. According to Courmont (*Revue de Médecine*, October, 1897), it is in cases which are exceptional, either on account of complications or severity, or because they are extremely mild, that the agglutinative power is feeble or delayed; in simple cases of moderate



PRINCIPAL BACTERIOLOGICAL LABORATORY



severity it appears constantly about the sixth or seventh day, is active, in dilution of 1 in 100, about the tenth day, undergoes a more or less rapid rise towards the end of the febrile period (critical rise), and then disappears more or less rapidly. The persistence of the agglutinative power after recovery appears to be very variable, in some cases rapidly disappearing, in others remaining for years. The blood of those who are not suffering from typhoid fever, and from whom no history of this disease can be obtained, occasionally gives a reaction in dilution of 1 in 10, or even 1 in 30 (the dilutions recommended by Widal). But these instances do not appear to be sufficiently numerous to impair seriously the value of the test. It is thought desirable, however, to use higher dilutions, viz., 1 in 50.

From the considerations briefly set out above, it seems permissible to conclude that—(1) A negative reaction is of little value in the early days of the fever. It is of greater importance in proportion to the lateness of the period at which

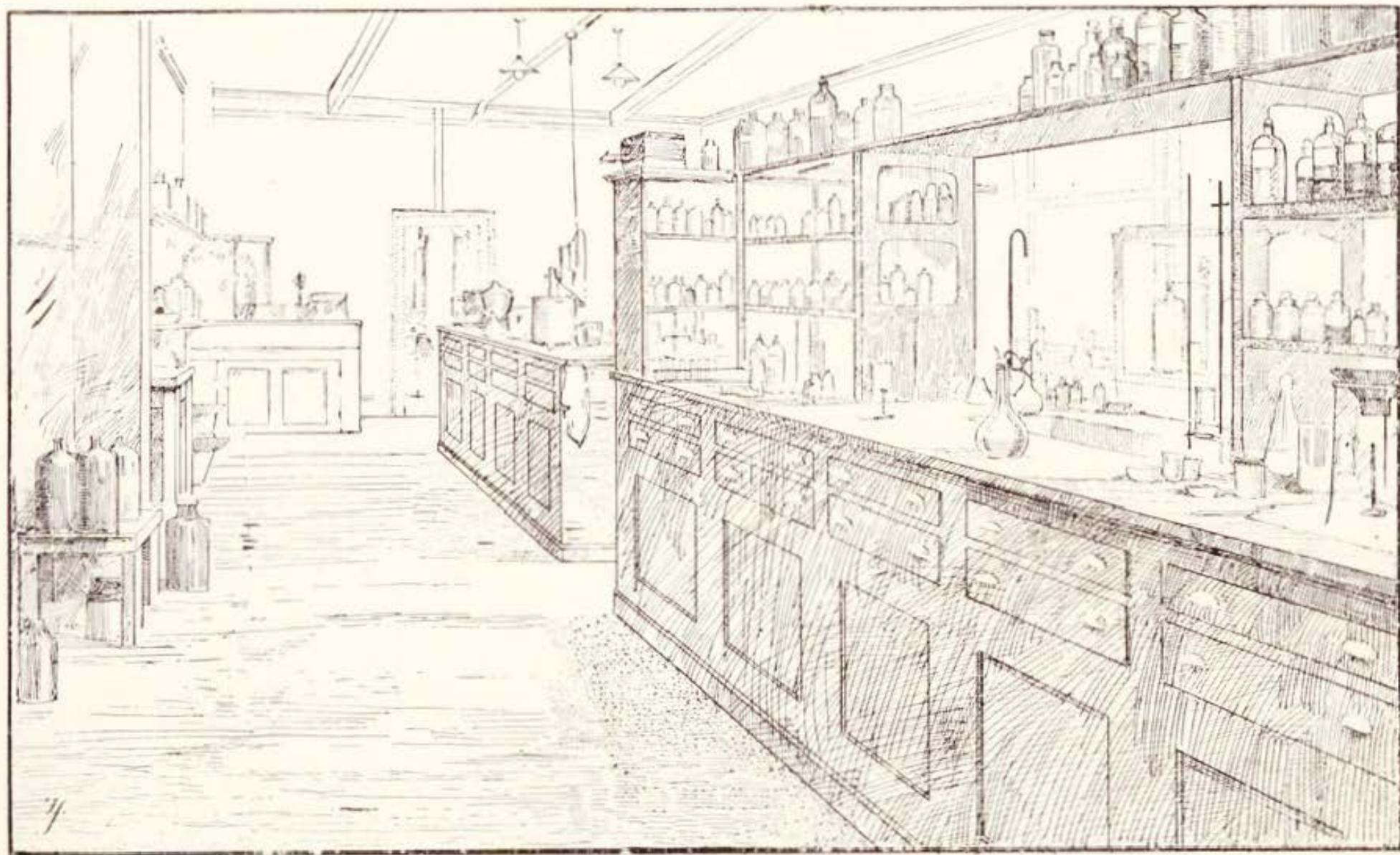
it is observed. It can, however, never absolutely Conclusions exclude typhoid fever. (2) A positive reaction, on the other hand, except with dilutions of less than 1 in 40, is sound evidence of typhoid fever, present or past. The latter can be excluded if several quantitative tests have been made at different periods, and decided changes in the agglutinative power observed.

Recently an ophthalmo-reaction in typhoid fever, produced by a special culture filtrate and resembling the tuberculo-ophthalmic reaction, has been described by Chautemesse, and some promising results of a similar nature have been obtained by the use of a typhoid endotoxin prepared at the Wellcome Physiological Research Laboratories.

#### ORGANO-THERAPY

The brilliant success which attended the introduction of the treatment of myxœdema by administration of thyroid substance, led to the investigation of the effects of other ductless glands. In no other case has a similar success attended similar methods; but the attention directed to these organs has resulted in the





ONE OF THE LABORATORIES FOR PHYSIO-CHEMICAL RESEARCH



discovery of marked physiological actions, of great therapeutic importance, possessed by some of them. It has been shown, by Schäfer and others, that the posterior or infundibular lobe of the pituitary gland contains an active principle—as yet of unknown nature—the effects of which are not less striking than those of the more familiar active principle of the supra-renal medulla. The effects of the pituitary extract include arterial constriction, intense and prolonged contraction of the uterus, and profuse secretion of urine. The action on the uterus is already attaining therapeutic importance, while the use of the tonic effect on the arteries to combat surgical shock has been recommended by several observers, notably by Mummery and Symes. The diuretic effect should also render the extract of great value in certain conditions.

#### ‘HEMISINE’

‘Hemisine’ is a name given to the active principle occurring in the medulla of the supra-renal gland and other smaller masses of paraganglionic tissue related to sympathetic ganglia. Its action likewise is closely connected with the sympathetic nervous system, intravenous injection producing all the effects which are elicited by stimulation of the nerve fibres of the true sympathetic system. Prominent among these is a great rise of blood-pressure, produced by constriction of peripheral arteries and augmentation of the heart's activity. So active is ‘Hemisine’ in this direction, that a dose of as little as 0·000001 gramme will produce a perceptible rise of blood-pressure. Contraction of the uterus is also caused in those animals in which the sympathetic nerve-supply to that organ is motor in function. These effects are illustrated by tracings.

Physiological  
properties of  
‘Hemisine’

#### ‘TYRAMINE’

‘Tyramine’ is a name which has been given to the organic base *p*-hydroxyphenylethylamine ( $\text{HO} \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{NH}_2$ ). It has been recognised now for some years, having been first pointed out by Abelous and his associates, that extracts



of putrefied meat contain substances which, when injected into the circulation, produce an effect on the blood-pressure reminiscent of that produced by supra-renal extracts. The same phenomenon was encountered by Dixon and Taylor, who found that certain extracts of human placenta caused a rise of blood-pressure and contraction of the uterus, it being subsequently demonstrated by Rosenheim that a certain amount of putrefaction of the placenta was necessary for the development of this activity. The substances concerned in this action have recently been isolated at the Wellcome Physiological Research Laboratories, and identified as *iso*-amylamine, phenylethylamine, and *p*-hydroxyphenylethylamine (Barger and Walpole, *Journal of Physiology*, xxxviii, p. 344, 1909). The action of these substances has been found to be similar in most respects to that of the supra-renal active principle, but weaker and more prolonged (Dale and Dixon, *Journal of Physiology*, xxxix, p. 25, 1909).

Of the three, *p*-hydroxyphenylethylamine is much the most active, being also the most nearly related in chemical structure to the supra-renal principle. Its relatively weak and prolonged action, as compared with the latter, enables it to be absorbed from the alimentary canal or the subcutaneous tissues, so that its general constitutional effects, rise of blood-pressure, increased vigour of the heart's action, and contraction of the uterus, can be produced by administering it by the mouth or hypodermically.

Tyramine  
the most  
active

The study of this substance has recently gained greatly in interest by the discovery (Barger and Dale, *Journal of Physiology*, 1909, xxxviii, p. 77, [Proc. Phys. Soc.]) that it is present in watery extracts of ergot, and is chiefly responsible for the well-known effects of such extracts on the blood-pressure and the uterus.

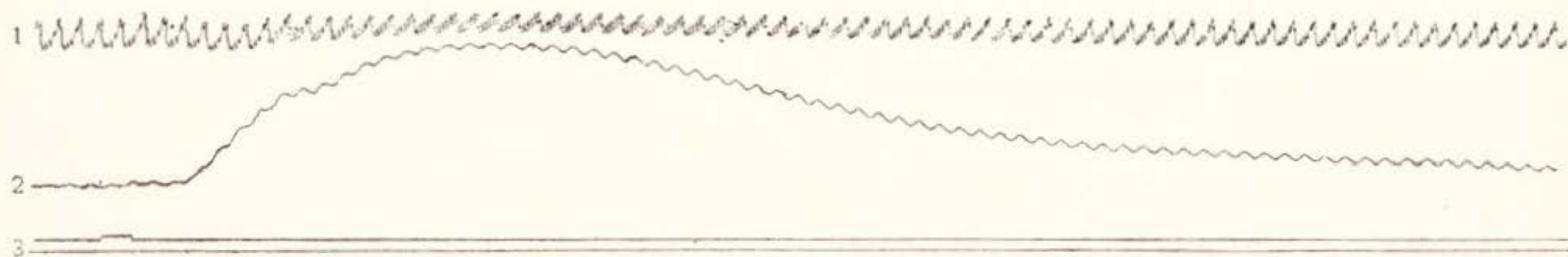
Several methods of preparing this base synthetically have been worked out at the Wellcome Physiological Research Laboratories (Barger, *Journal of the Chemical Society*, xcv, p. 1123, 1909), and it will probably find wide therapeutic use.



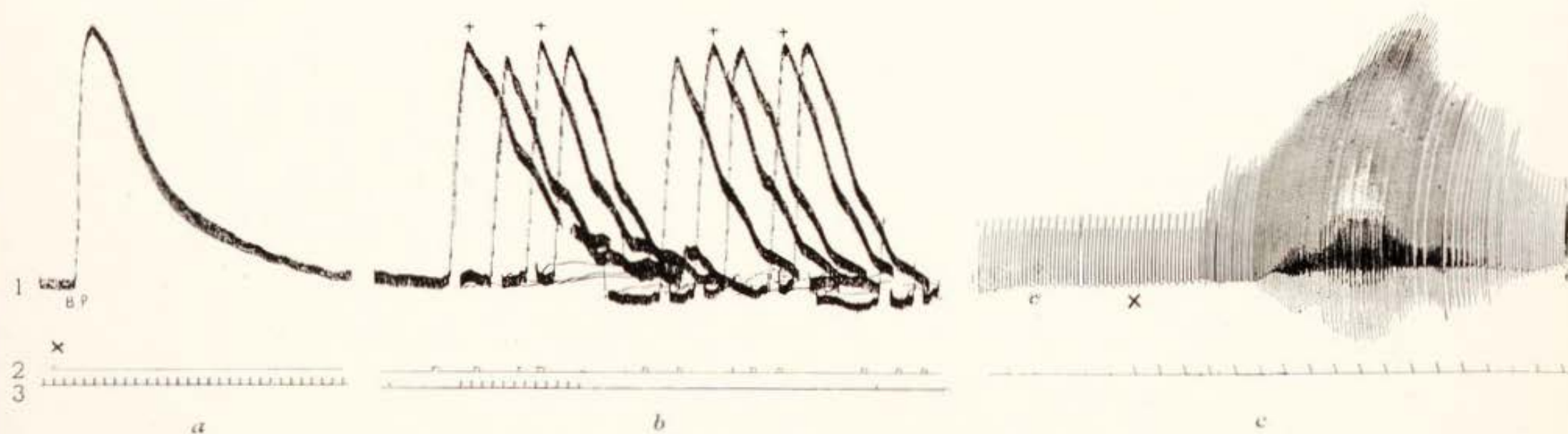
## ERGOTOXINE AND 'ERNUTIN'

Many substances which have in the past been described as active principles of ergot, and which undoubtedly showed physiological activity, have not possessed the characteristics of pure chemical substances. Such were the sphacelinic acid and cornutin of Kobert, and the chrysotoxin, secalintoxin, and sphacelotoxin of Jacobj. On the other hand, the alkaloid which Tanret isolated in an undoubtedly pure and crystalline form, and named ergotinine, was found by several observers to possess practically no pharmacological action, although there was some clinical evidence of its activity. Recent work in the Wellcome Physiological Research Laboratories (*see* Dale, *Journ. of Physiol.* xxxiv, p. 163, 1906; Barger and Carr, *Journ. Chem. Soc.*, xci, p. 337, 1907; Barger and Dale, *Bio-Chem. Journ.* ii, p. 240, 1907) has cleared up this anomaly by demonstrating the presence in ergot of the alkaloid ergotoxine, which is closely related chemically to ergotinine, being a hydrate of the latter and easily produced from it, but differing from it in being intensely active physiologically. Ergotoxine, though itself amorphous, forms crystalline salts, and has accordingly been prepared in a chemically pure condition. Its physiological action is characteristic, consisting of a stimulant action on plain muscular organs, and in particular on the arteries and the uterus. When a large dose is given, a secondary paralytic effect on the motor functions of the true sympathetic nervous system is produced. As a result, the injection of 'Hemisine,' or stimuli applied to the sympathetic nerves concerned, now cause a fall of blood-pressure and relaxation of the uterus in place of the previous rise of pressure and contraction. This secondary action affords a convenient means of recognising the presence of the active alkaloid, and estimating the quantity present in any specimen or preparation of ergot. This physiological method of assay is the more valuable in that no satisfactory chemical method is yet available for estimating ergotoxine.

Active  
principles  
of ergotThe  
alkaloid  
ergotoxine



H  
No. 1. TRACING SHOWING THE EFFECT OF 'HEMISINE' ON THE BLOOD-PRESSURE  
*See page 246*



No. 2. TRACINGS ILLUSTRATING ACTION OF 'HEMISINE' AND METHOD OF STANDARDISATION  
*See page 247*



As indicated in the description of 'Tyramine,' it has now been shown that the activity of watery ergot extracts is chiefly due to the presence of *p*-hydroxyphenylethylamine. It is quite in accord with what might be expected on theoretical grounds, that the ferments of a fungus like ergot should, equally with putrefactive bacteria, have the power of producing the base from the amino-acid tyrosine, derived, in this instance, from the proteins of the rye-grain. The presence of varying amounts of *p*-hydroxyphenylethylamine, together with small amounts of ergotoxine, accounts for the whole of that action of ergot extracts on the blood-pressure, which has been widely recommended as a basis of standardisation.

'Ernutin' is a fluid preparation which contains these active principles of ergot in a definite and uniform proportion, unmixed with depressant and harmful impurities.

#### PHYSIOLOGICAL STANDARDISATION

No insistence is needed on the desirability of a uniform standard of activity in all drugs, and especially in such as contain principles of a highly active and toxic nature. In the case of some, such as cinchona or belladonna, such a standardisation is easily carried out by chemical means.

There are, however, other drugs in which the active principles are of such a nature that attempts at chemical estimation are only misleading, even though the active principles are recognised and something known of their chemical nature. Typical instances of such drugs are those of the group including digitalis, strophanthus and squill. In the case of digitalis, research in these Laboratories (Barger and Shaw, *Year-Book of Pharmacy*, 1904) has shown the futility of the chemical methods suggested and the adequacy of an estimation based on the effect of the drug on the frog's heart. The conclusions reached apply, with little modification, to strophanthus and squill, and preparations of all these drugs are now standardised by this method in these Laboratories.

Necessity for  
physiological  
methods



*Cannabis indica* is a notoriously variable drug, but, by observing the nervous symptoms produced by a given dose in a dog or cat, a fair estimate of the activity of any specimen can be made.

Ergot is another drug in which the amount of the active principles varies to a very marked degree. The isolation of ergotoxine, and the demonstration of the presence of *p*-hydroxyphenylethylamine in ergot extracts, may eventually lead to the development of a satisfactory chemical method of determining its activity. Hitherto, however, a physiological method based on the action of ergotoxine and *p*-hydroxyphenylethylamine described above has proved a far surer guide than any chemical assay.

The purity of a specimen of 'Hemisine' can be much more satisfactorily determined by comparison of its activity to that of a standard specimen than by chemical tests. The method illustrated, in which the amount of a given specimen is determined, which produces a rise of blood-pressure equal to that given by a given dose of a specially-prepared pure standard sample, is found in these Laboratories to be workable to an accuracy of about 5 per cent., and is used in standardising all supra-renal preparations.

Kymographic tracings are exhibited illustrating the action of drugs mentioned above, and methods of physiological standardisation.

## DESCRIPTION OF TRACINGS

(I) 'Hemisine.' The lines of tracing, from above downwards, are :—

- I. Plethysmographic tracing of heart volume.
- II. Manometer-record of blood-pressure from the carotid artery.
- III. Signal line, showing time of injection.

At  $H$  0.0001 gm. of 'Hemisine' was injected into the jugular vein, causing a large rise of blood-pressure, and quickening and strengthening the heart-beat.

(2) 'Hemisine'—

(a) Effect of 'Hemisine' on the blood-pressure of a decerebrate cat:—

Lines of tracing—

- (1) Blood-pressure.
- (2) Signal line marking the point of injection.
- (3) Time-clock marking every 10 seconds.

(b) Method of standardising 'Hemisine' and other suprarenal gland preparations. Varying doses of the solution to be tested are interposed between injections of 0.00002 gm. of the standard specimen of 'Hemisine.' Effects of standard doses are indicated by a **X**. Between the injections the recording drum is moved back so as to produce partial superposition and facilitate comparison.

(c) Effect of 'Hemisine' on the isolated heart of a rabbit, perfused through the coronary circulation with oxygenated Ringer's solution (Locke's method). At **X** 0.00005 gm. of 'Hemisine' was added to the perfusion fluid.

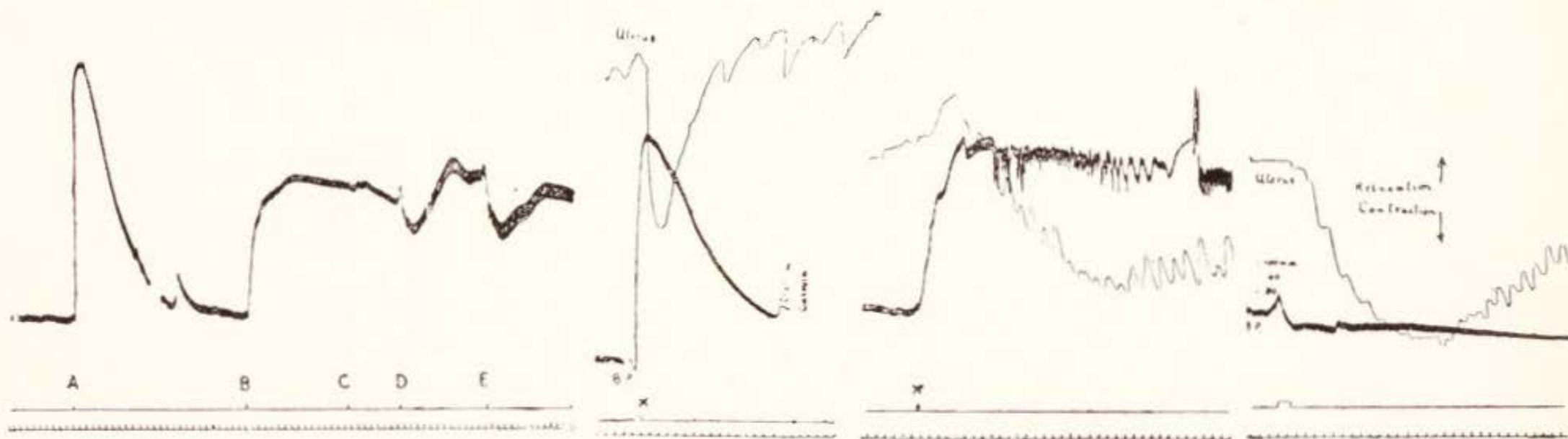
(3) Effect of 'Hemisine' and Ergotoxine on the blood-pressure and the uterus—

(a) Effect on the blood-pressure of intravenous injection of

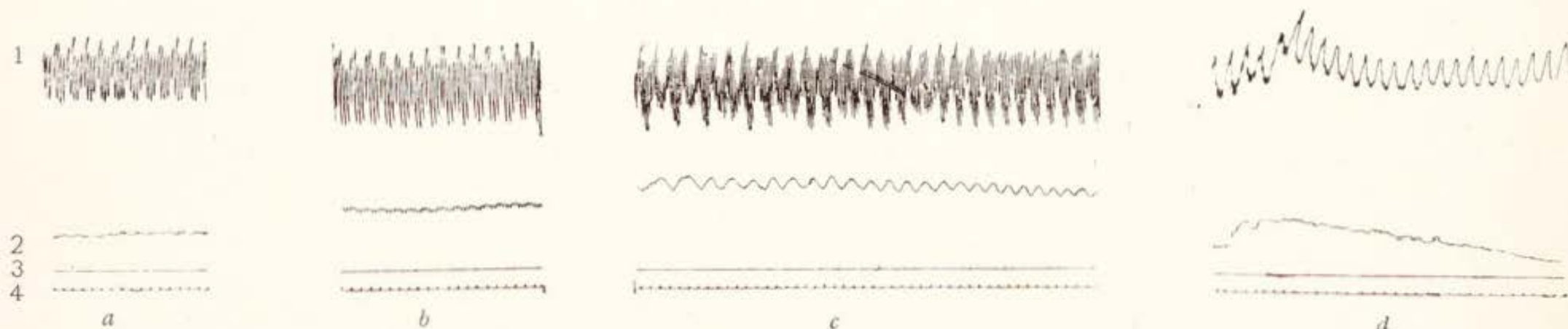
- (A) 0.00005 gm. of 'Hemisine.'
- (B) Alcoholic extract from 1 gm. of ergot.
- (C) " " " "
- (D) 0.00005 gm. of 'Hemisine.'
- (E) " " " "

Showing the rise of blood-pressure and subsequent reversal of the effect of 'Hemisine' due to ergotoxine in the ergot.





NO. 3. TRACINGS SHOWING THE EFFECT OF 'HEMISINE' AND ERGOTOXINE ON THE BLOOD-PRESSURE AND THE UTERUS. See page 247



NO. 4. TRACINGS SHOWING THE EFFECT OF STROPHANTHUS ON THE HEART AND BLOOD-PRESSURE See page 249



- (b) Effect of 'Hemisine' on the blood-pressure and uterine contraction. At X 0.0001 gm. of 'Hemisine' was injected, intravenously, producing a temporary rise of blood-pressure and a similarly evanescent contraction of the uterus.
- (c) Effect of ergotoxine on the blood - pressure and uterine contraction. At A 0.002 gm. ergotoxine was injected, producing a large rise of blood-pressure and very powerful and persistent uterine contraction.
- (d) Effect of intravenous injection of 0.5 gm. of chrysotoxin (ethereal ergot extract) on the blood-pressure and uterus of a monkey. The effect on the uterus is the only one of importance.
- (4) Effect of **Strophanthus** on the heart and blood-pressure of a pithed cat. Lines of tracing are :—
1. Cardiographic tracing, showing pull exerted by the heart on a lever held by a light spring.
  2. Manometer-record of blood-pressure.
  3. Zero line of manometer.
  4. Time-clock marking seconds.
- (a) Before injection of strophanthus.
- (b) After injection of a small therapeutic dose, rise of blood-pressure and augmentation of the heart-beat. The vagus centre being destroyed, the rate of the heart-beat is only slightly reduced.
- (c) After further injection of strophanthus, the heart-beat, still powerful, becoming quicker and irregular.
- (d) After a toxic dose of strophanthus. Heart-beat rapid, feeble and irregular. Blood-pressure falling rapidly.



LABORATORY FOR SPECIAL BACTERIOLOGICAL RESEARCH



## DESCRIPTION OF THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

The original laboratories, established in 1894, were enlarged from time to time to meet the requirements of constantly increasing work, until it was found necessary to acquire more commodious premises. The new laboratories were established at Brockwell Hall, Herne Hill, London (Eng.) in the early part of 1899.

The new  
laboratories

Brockwell Hall is an old-fashioned country mansion, standing in its own grounds. The adaptation of these premises to the requirements of research work has been carried out with the greatest care, and no pains or expense have been spared in rendering their appointments as complete as possible; so that the Institution's highly-qualified staff of research workers have full scope for their energy.

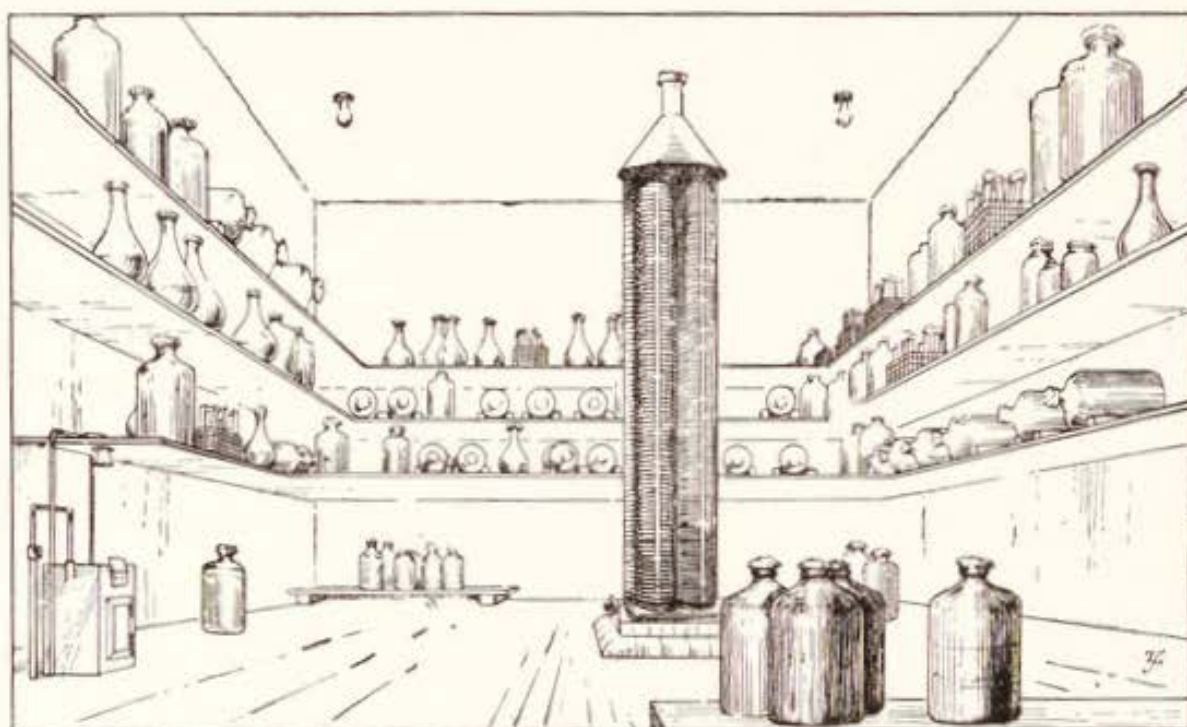
The room shown in the illustration on *page 238*, is the principal Bacteriological Laboratory. In this laboratory research is carried on in bacteriology and serum-therapeutics, injections are made for the standardisation of sera prepared in the establishment, and the elaborate series of sterility tests is made to which all sera are submitted before issue. On the other side of the entrance-hall is the principal Chemical Laboratory (*see page 240*), devoted to research on the nature of naturally occurring substances of biological importance, and the synthesis of new compounds likely to be pharmacologically and therapeutically interesting.

Bacterio-  
logical and  
Chemical  
Laboratories

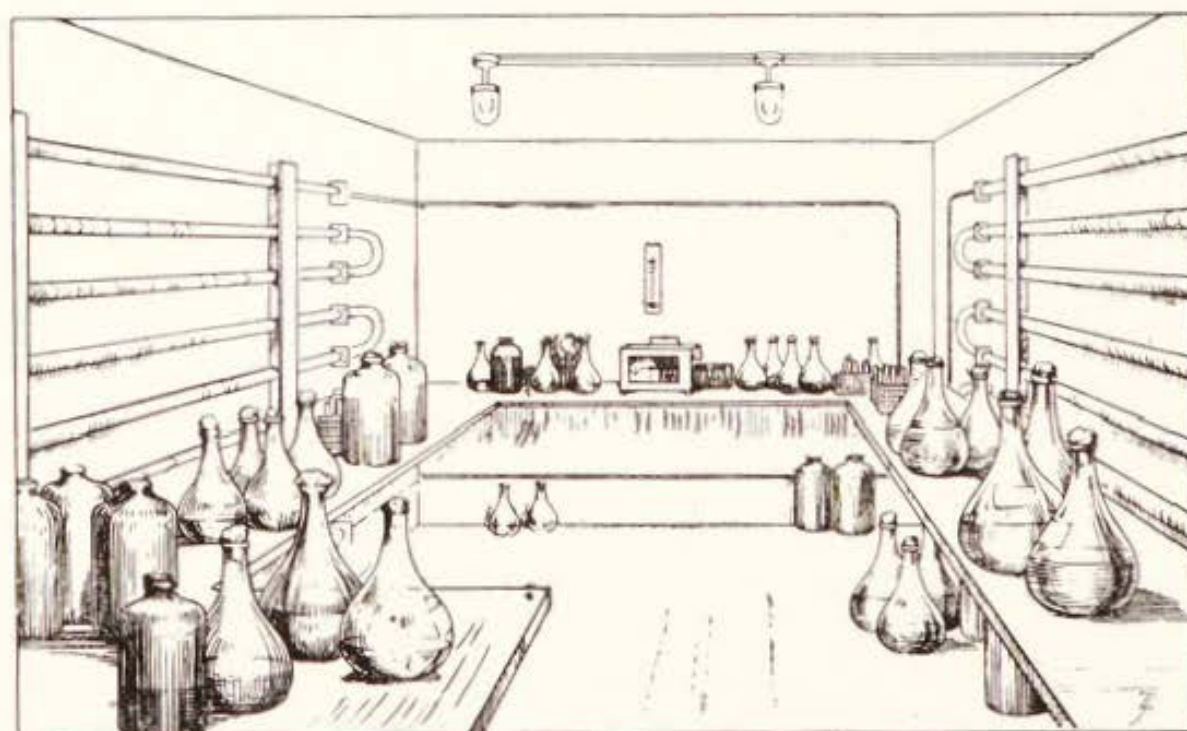
A small Chemical Laboratory; the Secretary's office; a dark room for photographic work; and the Library, are also on the ground floor. The Library is well supplied with standard works of reference, both chemical and physiological, and the current scientific literature of both these subjects, as well as that of bacteriology, is well represented.

The spacious cellarage contains, in addition to compartments for storage of various materials, a recently-erected cold chamber,





ONE OF THE INCUBATING CHAMBERS



COLD STORAGE CHAMBER

9 ft.  $\times$  7 ft. in floor area, kept constantly below freezing-point by means of an ammonia freezing installation, and also an incubating room.

The Physiological Laboratories are situated on the first floor of the building. In these rooms physiological and pharmacological research, and the physiological testing and standardising of various drugs and chemicals are carried on. Physiological  
Laboratories

On the same floor are :—

(1) **Serum office.** A small room at the head of the staircase where all the records of procedures connected with serum production are preserved in perfect order for daily work and reference.

(2) **Sterile serum room.** A room paved with cement and fitted with special glass benches for the manipulation of serum. It can be flushed all over with water to free the air from dust, and, with the door closed, can be sterilised with formalin. It is provided with a large porcelain dialysing-tank, and is used for the processes involved in the artificial concentration of antitoxin.

(3) A room devoted to the preparation and standardisation of bacterial vaccines.

(4) **Serum testing room.** A room set apart for making dilutions of diphtheria antitoxic serum and preparation of injections of mixed diphtheria toxin and serum used in standardising the latter for issue from the laboratories (to Messrs. Burroughs Wellcome & Co.). The standard apparatus employed is never moved from this room nor used for any other purpose.

(5) A third chemical laboratory, provided with special mechanical appliances for working at low pressures.

Two special laboratories are devoted to the preparation of media: one, a small pent-house, occupied entirely in the production of test-tube media for use in the bacteriological laboratory; the other, a commodious well-lit outbuilding communicating with the boiler-house, having a floor paved with cement, and the Nutrient  
media





ONE OF THE ROOMS IN WHICH PHIALS ARE FILLED



SPECIAL LABORATORY FOR THE COLLECTION OF BLOOD  
AND SEPARATION OF SERA



walls enamelled in order to facilitate cleaning. Here is made nutrient broth of various kinds on a large scale, to be used in the preparation of the various cultures and toxins for use in the stables. This laboratory is also used for the initial work upon crude animal material before it is sent to the chemical laboratory for further elaboration. Between this room and the boiler-house are two compartments, one for stores, the other to accommodate the large high-pressure steriliser which can deal with bottles, containers, etc., of large size.

The serum, after being obtained in the collection-laboratory adjacent to the stables, is taken to a special building recently erected, where all further processes involved in separating it and measuring it into phials are now carried out. The building contains a cleaning-room for all apparatus used in the manipulations; a sterilising-room, for the heat-sterilisation of the same; and a phial-room, where the phials, in which the sera and vaccines are issued, are cleaned and prepared for sterilisation, and subjected to scrutiny after filling.

Germ-proof  
filters

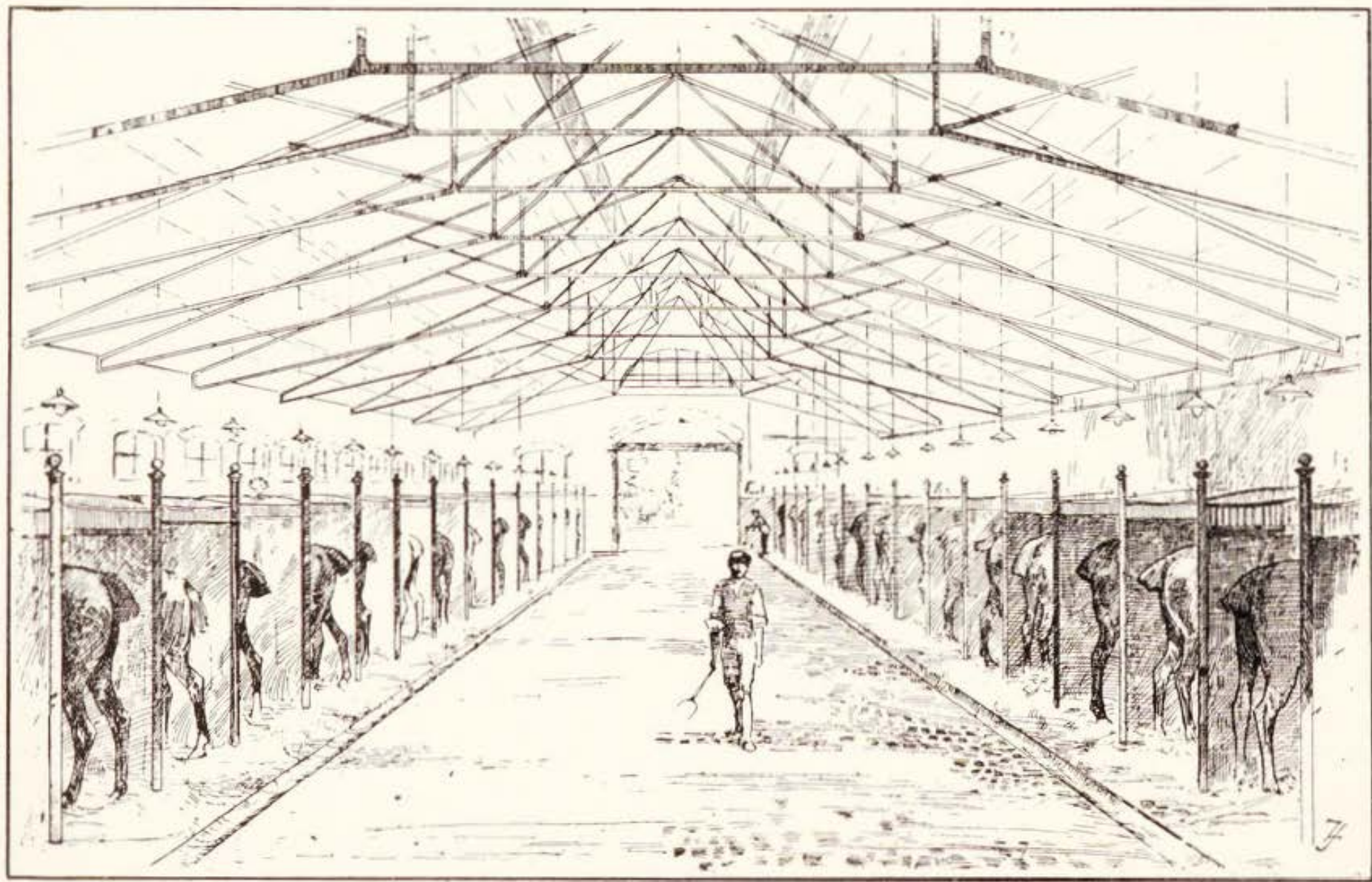
The rest of this building is completely closed from the outside air, and ventilated by an ample current supplied by a large motor-fan, placed outside in a special building. The air is passed through a germ-proof filter before it enters the main building; the rooms are constructed without angles or corners, and can be sterilised nightly with formaldehyde vapour, which the sterile, fan-driven air removes again in a few minutes. This sterile section includes:—

(1) A store-room in which the sera and vaccines are kept, ready to be run into the issuing-phials.

(2) Duplicate rooms in which the process of separating the serum from the clot is carried out. One of these rooms is always being sterilised while the other is in use. These rooms open out of the serum store, and can only be approached through it. A small chamber, in which the serum is mechanically driven through germ-proof filters into the storage bottles, also opens out of the store-room.

(3) A room in which the serum is filled into phials. This is approached from the phial-preparing room by means of a





INTERIOR OF ONE OF THE STABLES



double air-lock. Before entering the room the assistants must assume sterilised overalls, caps and goloshes, and sterilise the hands. Into this room the serum passes by tubes from the store room, and each phial, as soon as filled, is passed under a glass screen to another assistant, who immediately seals the neck at the blow-pipe.

Between the main building and the animal houses a brick building of one storey has been erected. The one room on the ground level is specially fitted for bacteriological work. The floor is cemented, the walls tiled to a height of four feet, and all corners avoided by a rounding of angles. In this room manipulations are carried out connected with stock cultures, special research work, and the preparation of various vaccines. The cellarage, surrounded by a drained area, is divided into two rooms. The larger, 12 ft. square, is kept at a constant temperature, ranging from 35°-40° at different levels in the room. This is used for incubation on a large scale. Alongside it is a smaller room, in which a still atmosphere affords especially suitable conditions for bacteriological operations. Recently another building, containing three laboratories, and two rooms for keeping rodents, has been erected at a distance from the other buildings, for the purpose of special bacteriological research.

Other  
Laboratories

### THE STABLES AND OTHER ADJUNCTS

The stables are situated about one hundred yards from the laboratories. They are lofty, well-lighted and well ventilated, and are fitted with every convenience and contrivance conducive to the well-being of the horses. The walls are of white glazed brick and cement, the floor being paved throughout with the best stable bricks.

The old stables and coach-houses of the Hall have been remodelled in accord with modern views, and are now used for the testing of new horses with mallein and tuberculin before they are admitted to one of the large stables. Near by is a special laboratory for

Collection of  
sera



the collection of blood and separation of sera. This laboratory, like the stables, has been so built as to permit of the whole room being flushed with water, so that sera can be manipulated under the conditions necessary for ensuring sterility.

An entirely new system of drainage for the laboratories, stables and other premises has been carefully carried out.

The laboratories, stables, outbuildings and grounds are electrically-lit, and are all in telephonic communication.

**Electric installation** The boiler, engine and dynamo necessary for the generation of the current used in the various motors on the premises are placed in brick and cement buildings adjoining the south-west side of the Hall. Near the boiler is a large cylindrical steriliser, constructed for a working pressure of 30 lb. The sterilisation of all large vessels containing nutritive media, etc., is effected here, as also of all vessels which have been used in the laboratories.

**Paddock gardens** The grounds contain a large paddock, and also gardens for growing vegetables for the animals. A large store for fodder, with electrically-driven chaff-cutter, has recently been erected.

## THE ANIMAL HOUSES

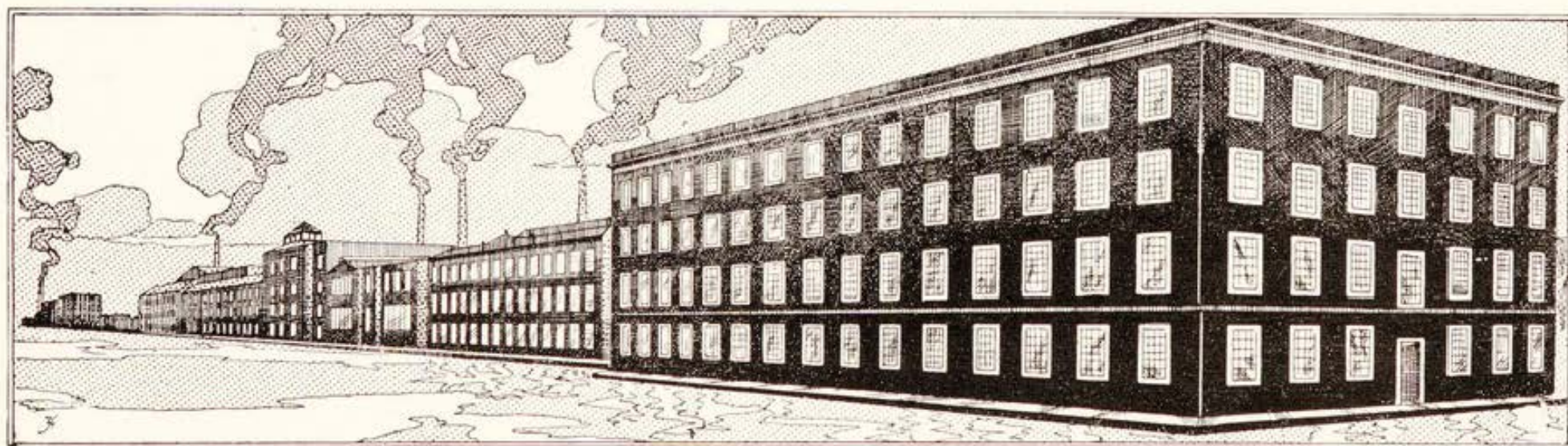
**Efficient isolation** A large animal house has been erected, which accommodates all the rodents required for the work of the laboratories. It contains full provision for the efficient isolation of animals inoculated with living cultures. The heating and ventilation of this building have been very carefully carried out, with a view to the health and comfort of the animals.

Another range of sheds contains well-drained, comfortable kennels for dogs, a stable for goats, and a steam-heated apartment for cats, communicating with a large open-air cage.

[Go Back to INDEX \(PDF p. 10\)](#)

Weapons of Precision Produced by Science and Industry

WEAPONS OF PRECISION  
PRODUCED BY  
SCIENCE AND INDUSTRY



'WELLCOME' CHEMICAL WORKS, DARTFORD, KENT



## THE WORK OF BURROUGHS WELLCOME & CO.

From the time of the founding of the firm, progress has been steady and continuous. The keynote of this success lies in the firm's own original scientific work, conducted under the most favourable conditions, as well as its ready recognition of all scientific advances and research, and adaptation of the results to the methods of modern production.

Keynote of  
success

"The rule of thumb is dead and the rule of science has taken its place"

"Science and Industry" has been the guiding motto of B. W. & Co. from the first. They have aimed at attaining and maintaining the highest possible degree of excellence in the products they issue. By keeping abreast of research work, and by promptly adopting the most scientific modern methods, they have not only kept pace with the latest developments in medicine and pharmacy, but have been pioneers in the introduction of some of the most notable agents employed in modern medicine, and have contributed largely to the great advances of the times.

"Science and  
Industry"

Patient and persistent research\* by a staff of chemical, pharmaceutical and physiological experts has yielded fruitful results. Not only has the firm satisfied the highest requirements of physicians by the purity, reliability and scientific precision of the products, but it has met the needs of conscientious pharmacists who pride themselves on the *supreme* quality of everything they dispense.

Results of  
scientific  
research

---

\* Research pioneered by Burroughs Wellcome & Co. many years ago is still continued in their works by a highly-qualified staff. The Wellcome Chemical Research Laboratories, King Street, London (Eng.), and the Wellcome Physiological Research Laboratories, Brockwell Hall, Herne Hill, London (Eng.), are Institutions conducted separately and distinctly from the business of Burroughs Wellcome & Co., and are under separate and distinct direction, although in these two Institutions a large amount of important scientific work is carried out for the firm.



PORTION OF FRONTAGE  
BURROUGHS WELLCOME & CO.'S CHIEF OFFICES, LONDON  
Corner of Holborn Viaduct and Snow Hill  
facing Holborn Viaduct Station



To supply medicaments characterised by purity, accuracy, uniformity and reliability has been the firm's policy from its earliest days. This has been achieved by devising new appliances, by employing only the most scientific methods, and by conducting the various stages of manufacture under the direct supervision and control of specially-trained and qualified pharmacists and other experts. That success has been achieved is amply evidenced by the high appreciation accorded by physicians and pharmacists throughout the world to the "WEAPONS OF PRECISION" created by the firm. Untiring, strenuous endeavour and vast expenditure have been required to attain these results.

"Weapons of Precision"

#### WORKING IMPERIALLY

Mr. Joseph Chamberlain has taught the nation to think Imperially,—Burroughs Wellcome & Co. work Imperially.

It has been the special ambition of this firm to win back to England by actual merit some of the lost industries snatched away from the country in recent years by alert, enterprising rivals of other lands, who wisely and well apply science to their industries, and slumber not. B. W. & Co., never content with the time-honoured "rule of thumb" methods, have in a considerable measure gratified their ambition. Particularly in the production of Fine Medicinal Chemicals including the powerful alkaloids, glucocides and other active principles now so largely replacing the use of bulky and nauseous crude natural drugs, thus securing greater certainty and uniformity of potency.

Bringing back to England lost industries

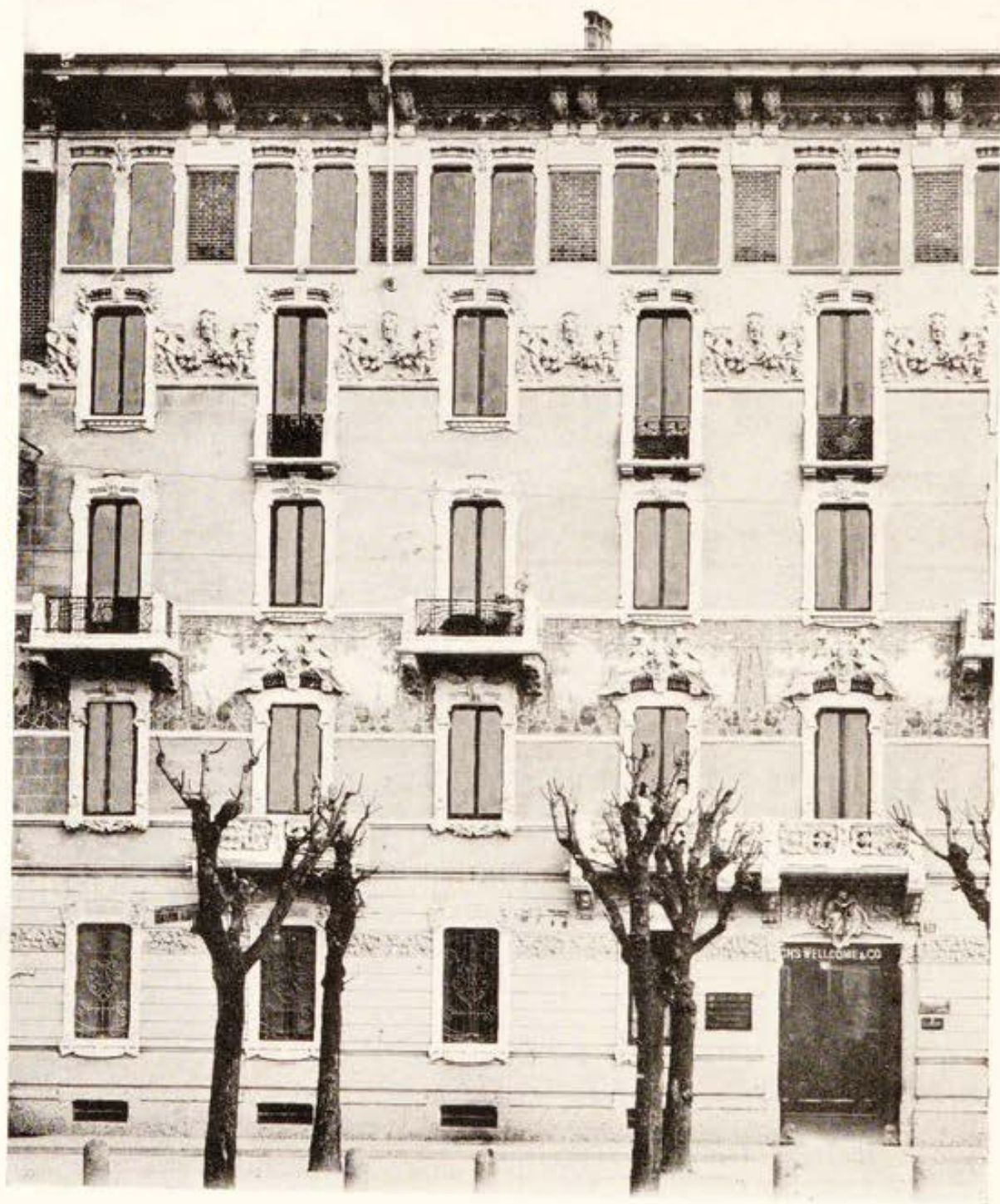
In this work it has been the aim not only to equal but to surpass foreign production, and the results speak for themselves.

#### PIONEERS IN NEW DRUGS

The firm has pioneered the introduction of many new and valuable natural drugs, notable amongst which may be mentioned Strophanthus, or Kombé, the powerful African arrow poison which has proved so efficacious in certain heart disorders.

"Turned a deadly enemy into a valued friend"





*Italian Depot:*  
BURROUGHS WELLCOME & CO.  
26, Via Legnano, MILAN



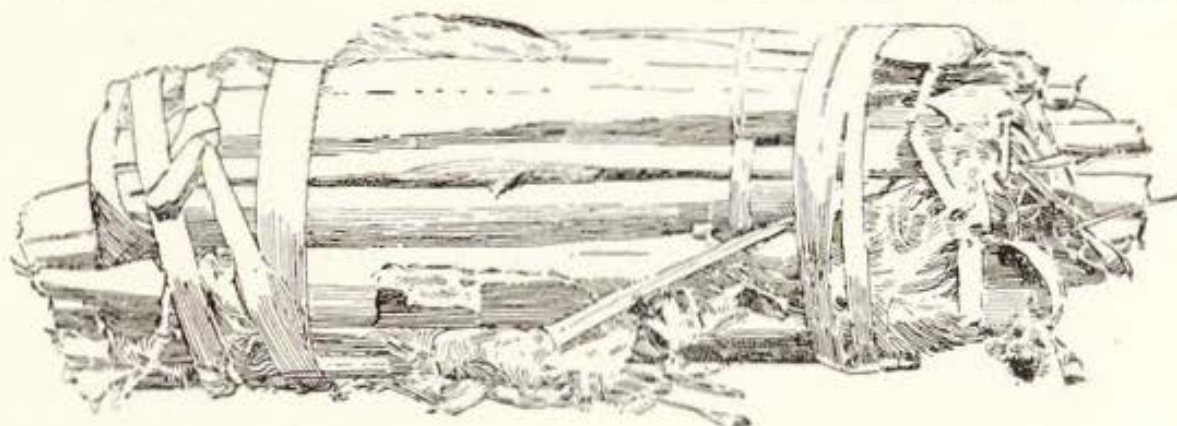
Sir THOMAS FRASER of the Edinburgh University first investigated and demonstrated the properties of Kombé from a comparatively small specimen, and B. W. & Co. immediately took vigorous steps to procure supplies of the drug regardless of expense and immense difficulties.

Pioneers in the  
introduction of  
Strophanthus

Emissaries were sent to collect the small reserves of arrow poison from the rude huts of many Central African warriors. In this way a fair quantity was accumulated, but at a cost of more than £20 per pound.

£20 per pound

Thus the true *Strophanthus* Kombé was first introduced to England and to the world—B. W. & Co. were first in the field.



A bundle of the first consignment of strophanthus which reached Europe for Burroughs Wellcome & Co.

These earliest supplies were obtained quite regardless of monetary considerations, and, notwithstanding the great cost, parcels of the drug and its preparations were at once distributed, without charge, to leading physicians throughout the world. By this means the therapeutic properties of strophanthus were confirmed by investigators in various lands.

For more than a year this was the only supply of *Strophanthus* outside the "Dark Continent," and then B. W. & Co. again secured all that was obtainable, and were the only suppliers for many months. *Strophanthus* is now one of the approved remedies of the Pharmacopœias. In less than two years the firm was treating several hundred-weights of strophanthus seeds at a time, thus securing perfect uniformity in the activity

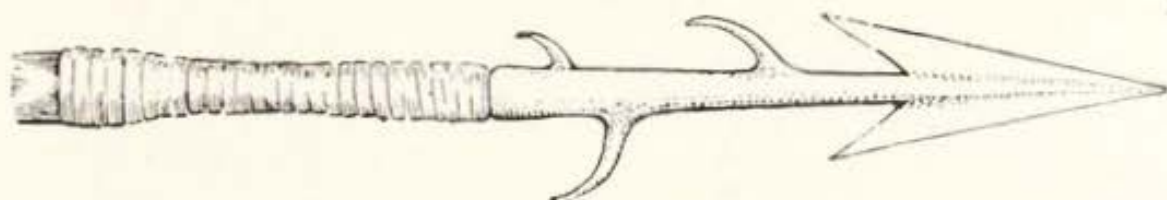
Products of  
B. W. & Co.  
secure pre-  
cision of dose



*Australasian Offices and Warehouses:*  
BURROUGHS WELLCOME & CO.  
481, Kent Street, SYDNEY, N.S.W.



of the products, and enabling the dosage and action to be controlled with precision.



Arrow-head poisoned with strophanthus

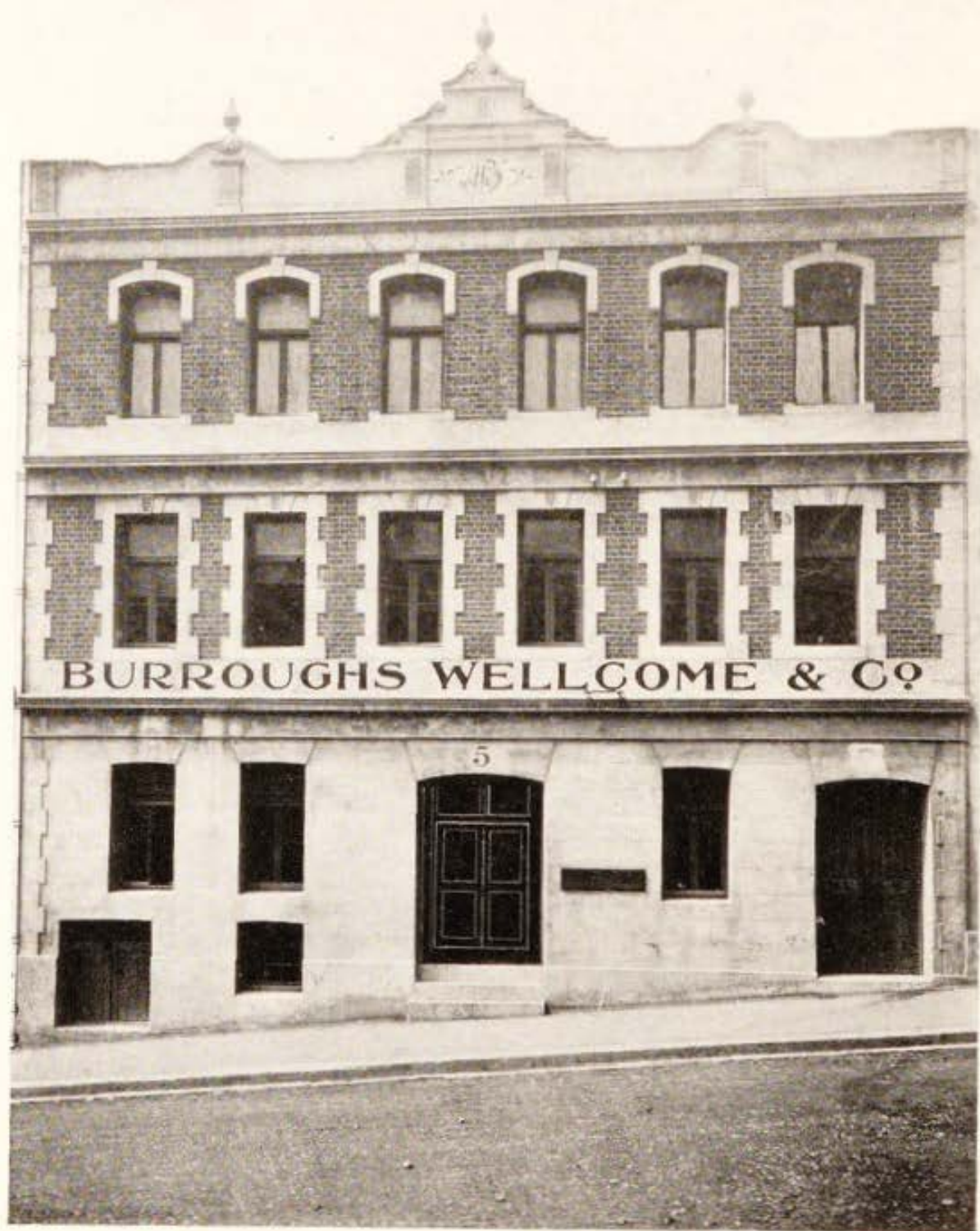
Amongst those who were interested in the introduction of strophanthus were Sir JOHN KIRK (then of Zanzibar), and Dr. DAVID LIVINGSTONE, who referred to its employment by natives as an arrow poison, in his narrative of his expedition to the Zambesi. It was the intimate association which BURROUGHS WELLCOME & Co. have always had with the pioneers of African exploration which enabled them to be first in placing supplies of the drug at the disposal of the medical profession.



Plumed seed of Strophanthus Kombé

STROPHANTHUS KOMBÉ, the source of the drug, is a woody climber growing freely in many parts of Eastern Africa. From the seeds the natives prepare a paste with which they poison their arrows.

The source



*South African Offices and Warehouses:*  
BURROUGHS WELLCOME & CO.,  
5, Loop Street, CAPE TOWN



The seeds are contained in follicles, and each bears a beautiful plume-like appendage springing from a delicate stalk. Each seed weighs about half a grain.

#### PIONEERS IN PHARMACOLOGICAL WORK ON ANIMAL SUBSTANCES

When renewed attention was drawn to the therapeutic action of certain animal substances, this firm pioneered the pharmacological work on the various glands, having already been long engaged upon researches on brain matter and other substances of animal origin, they were first to produce a stable and reliable product of the thyroid gland, and this remains the standard and accepted preparation amongst the medical profession throughout the world.

Although the principle suggesting and guiding this modern departure in therapeutics is the outcome of recent physiological research, the belief in the use of organs or tissues for the relief of human suffering, or for the production of certain physical conditions, is known to have existed from the earliest times. Antient belief

The belief in the utility and value of animal glands and tissues in the cure of disease is not altogether the outcome of modern research, for we learn from Herodotus, fifth century B.C., that in his day, the people called Budini or Geloni "used the testicles of otters, beavers and other square-faced animals for diseases of the womb." From prehistoric times savage tribes have been accustomed to eat the hearts of lions, tigers and other courageous animals, and even of human enemies, with the object of acquiring added valour in battle. And so, after the lapse of centuries, the fruits of man's early instinct have been reaped for his benefit by modern scientific men.

Among old-world medicines, compounds of the organs and tissues and excreta of mammals, birds, fishes and insects occupied permanent positions of prominence. They were included in the London Pharmacopeia issued by the Royal College of Physicians in 1676, and in Salomon's New London Dispensatory of 1684. The present increasing use of animal



substances may be largely traced to the researches and enthusiastic advocacy of Brown-Séquard, though it must be admitted that such advocacy was exaggerated, and perhaps lacked dignity and reserve. In spite of his attitude, which experience has not justified, he in some considerable measure succeeded in establishing his contention that all glands, with or without excretory ducts, give to the blood, by internal secretion, principles always important and in most cases essential, to the general well-being of the body.

Organo-therapy, animal medication, and glandular therapeutics are among the terms now applied to the administration of organs or tissues or of the internal secretions of glands, in certain diseases, induced, or believed to be induced, by the degeneration, disease, defective development, or removal of the corresponding organs, tissues, or glands. Many diseases, arising from defective functions of particular organs, are now treated by these animal substances, and the principle has been established that the lessened or lost power of an organ may in some cases be restored by the administration of corresponding organs taken from healthy lower animals.

Modern  
knowledge

The work of Burroughs Wellcome & Co. on these animal substances has been directed not to the therapeutics but to the chemical and pharmacological side, and the production of active and staple products for the use of the medical profession, and in this they have attained marked success.

Amongst other animal products dealt with was the supra-renal gland, which yielded first to Abel and Crawford a powerful and highly valuable active principle under the title Epinephrine, other workers produced modified products, but the active principle was first produced in a dry, soluble, active form in the Wellcome Physiological Research Laboratories, and is now issued by the firm under the title 'Hemisine.'

#### GOOD OR EVIL

Ergot, the blessed and cursed blight of rye, which has wrought much good and much evil, a substance greatly valued



as a remedy, and yet it destroyed countless lives during the grain plagues called St. Anthony's fire of the middle ages.

Ergot blessed  
and cursed

Ergot of rye has been one of the problems that has long baffled scientific workers. It was investigated in these same laboratories, and the true representative active principle was discovered, and is now issued as a standardised product of great power and uniform activity of immense importance to the medical profession.

### THERAPEUTIC SERA

The Wellcome Physiological Research Laboratories were pioneers in the production of Anti-Diphtheritic Serum in the British Empire, and also supplied the first used in America. During the early days, and until the real value was conclusively demonstrated, all offers to purchase supplies of the serum were refused, but all that could be produced was freely placed without charge at the disposal of the principal clinics, hospitals and private medical men who had diphtheritic cases under treatment. These trials proved successful, and the 'Wellcome' brand of serum supplied by B. W. & Co. has continued to hold first place throughout the Empire. These laboratories have done a vast amount of original work in the whole range of therapeutic sera—and in vaccines, etc., and in many other organic bodies of importance in medicine.

At first for  
clinical tests

Though these Physiological Research Laboratories are conducted under separate and distinct direction, and many of the researches are solely of scientific interest as contributions to human knowledge, yet much work of practical value is carried out for the firm, the Principal of which founded the laboratories.

### FINE CHEMICALS

The Wellcome Chemical Research Laboratories have worked in the same manner with benefit to science and to the firm, devising new chemical processes and producing new chemical



agents, both organic and inorganic. The investigations of vegetable drugs and their representative principles have yielded highly important results, both in the discovery of new principles and in raising the standard of purity and potency of valuable well known substances, notably Pilocarpine, Aconitine, etc., etc. The co-operation of these two research laboratories, with their efficient scientific staffs working under the guidance of the two highly-qualified Directors, distinguished for thoroughness and accuracy, is of immense importance to the firm.

Raising the  
standard

But the research work does not rest here. There is also in the experimental and analytical laboratories at the firm's works, a highly-skilled staff constantly engaged in research for the discovery of new active chemical and pharmaceutical substances, and for the improvement of those already known.

Amongst the recent discoveries are 'SOAMIN,' the new substance which has proved so successful in the treatment of Syphilis, and of the dread Sleeping Sickness now rapidly decimating the population of the Congo, Uganda and other parts of Central Africa; 'ORSUDAN,' now under trial for Malaria; and 'NIZIN,' the new antiseptic, powerful, but free from many of the dangers of other antiseptics.

A large number of other important developments in chemistry and pharmacy have been made in these laboratories, including the production of Chloroform of a standard that secures greatly increased safety and uniformity, and the confidence of the medical profession.

In the manufacturing departments every operation is studied with the view to new discoveries and improvements, and aiming to make daily progress.

#### EQUIPMENTS

Completely fitted cases have been devised to meet the requirements of up-to-date medical men and others engaged in medical and sanitary science; for example, hypodermic, ophthalmic cases, urine testing, water analysis, bacteriological testing cases, etc.



Medicine and first-aid chests, cases, belts, etc., for military and naval purposes, for explorers, missionaries, travelling journalists, war correspondents, aeronauts, motorists, yachtsmen, planters; in fact, equipments for the air, for the earth, for the depths, and for every clime under every condition.

### HISTORY OF COMPRESSED DRUGS

Burroughs Wellcome & Co. are successors to, and the sole proprietors of, the business of BROCKEDON, who, in 1842, originated compressed medicines in the shape of bi-convex discs—issued under the designation of “compressed pills.” The production of compressed substances has been developed and carried to a high state of perfection by B. W. & Co. This has been accomplished by research and the use of chemicals of exceptional quality, and by the employment of specially-devised machinery of rare accuracy. This exclusive machinery, invented by the firm, and produced at great cost, operates with the precision of the finest watch-work. By its aid the firm's specially-trained expert chemists are enabled to prepare compressed products for issue under the ‘Tabloid,’ ‘Soloid’ and other brands, of unique accuracy of dosage and of a perfection of finish never before attained. These products present medicines, etc., of so varied a character as to represent a range of dosage of 1/1000 of a grain to 60 grains or more.

Origin of  
compressed  
products

B. W. & Co's  
work in  
perfecting

The qualities of purity, accuracy, activity and stability which characterise ‘Tabloid’ and ‘Soloid’ products have secured unusual appreciation and approval from medical and pharmaceutical experts, and these preparations are prescribed in private practice and in military and civil hospitals in all parts of the world.

World-wide  
appreciation

### MEDICAL AND FIRST-AID EQUIPMENTS

From the time of the founding of the business, Burroughs Wellcome & Co. have made a special feature of studying medical and surgical requirements for expeditions to tropic and

THE



'Tabloid'

AND

'Soloid'

Invented

by

B. W. & Co.

Are

B. W. & Co.



They *mark* the work of  
Burroughs Wellcome & Co.

They *mean* "Issued by  
Burroughs Wellcome & Co.

They *stand* for

**24 CARAT** products



arctic and other trying climates, especially for the use of explorers, journalists and other travellers; for armies in camp, on the march, and in the battlefield.

Careful and prolonged enquiry and practical experimentation have enabled them to so perfect their equipments for these purposes that almost every military expedition and journalistic pioneering tour of recent years has been fitted out by the firm.

#### B. W. & Co.'s GENERAL OFFICES

The firm's chief offices and administrative premises are centrally situated in the City of London, facing Holborn Viaduct Station, and at the junction of Holborn Viaduct and Snow Hill. They are thus within a stone's throw of such historic sights as St. Paul's Cathedral, the Old Bailey (Central Criminal Courts), the Charterhouse, St. Bartholomew's, and Smithfield.

Chief Offices

Originally occupying only the corner building, these offices have been extended, at the demand of increased business, both along Holborn and down Snow Hill until the street frontage has become nearly 300 feet, and the floor space 43,000 square feet (*see page 262*).

#### 'WELLCOME' CHEMICAL WORKS

The 'Wellcome' Chemical Works (*illustrated on page 260*), which form the principal manufacturing premises of the firm, are situated at Dartford, Kent, near London. On one side the Works have direct water communication with London and the Docks of the Waterway of the Thames; on the other side they front on to the railway and so are in touch with the metropolis and the Continent.

Works

#### SIX B. W. & Co.'s ESTABLISHMENTS ABROAD

In addition to the Chief Offices and Works in England, Burroughs Wellcome & Co. have fully-equipped establishments at New York, Montreal, Sydney, Cape Town, Milan and Shanghai. Photographs of the Milan, Sydney and Cape Town Branches appear on *pages 264, 266 and 268*.



AWARDS CONFERRED UPON  
BURROUGHS WELLCOME & CO.

INTERNATIONAL  
EXPOSITION  
ST. LOUIS, 1904

THREE GRAND PRIZES  
AND  
THREE GOLD MEDALS



INTERNATIONAL  
EXHIBITION  
LIÉGE, 1905

SIX GRAND PRIZES  
THREE DIPLOMAS OF HONOUR  
AND  
THREE GOLD MEDALS



INTERNATIONAL  
EXHIBITION  
MILAN, 1906

THREE GRAND PRIZES  
THREE DIPLOMAS OF HONOUR  
AND  
ONE GOLD MEDAL



FRANCO-BRITISH  
EXHIBITION  
LONDON, 1908

SEVEN GRAND PRIZES  
ONE DIPLOMA OF HONOUR  
AND  
TWO GOLD MEDALS

MAKING IN ALL MORE THAN  
220 HIGHEST AWARDS  
CONFERRED UPON THE FIRM FOR THE  
SCIENTIFIC EXCELLENCE OF THEIR PRODUCTS  
AT THE  
GREAT EXHIBITIONS OF THE WORLD

TRADE  
MARK

# 'TABLOID' BRAND FIRST-AID

FOR

Journalists, War Correspondents, Automobilists, Aeronauts,  
Yachtsmen, Sportsmen, Travellers, Tourists, etc.

Compact outfits of bandages and first-aid accessories, etc.,  
suitable for use when travelling.

Cases  
and  
contents  
are of the  
B. W. & Co.  
sterling  
quality



Price in  
London  
50/-

No. 702. 'Tabloid' First-Aid (Registered) (Royal Blue enamelled  
leather)—closed. Measurements:  $7 \times 5\frac{1}{4} \times 2\frac{3}{4}$  in.

## No. 702. 'TABLOID' Brand FIRST-AID (Registered)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia,  
for use as "Smelling Salts," 'Borofax,' Hazeline' Cream, Sal Volatile, Carron  
Oil, tourniquet, gutta-percha tissue, plaster, protective skin, scissors, pins,  
etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or  
Brewster Green enamelled leather.



Price in London  
50/-

No. 702. 'Tabloid'  
First-Aid (Registered)  
(Brewster Green  
enamelled leather)—  
open



No. 707. 'TABLOID' Brand FIRST-AID (Registered)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron Oil, plaster, protective skin, pins, etc., and six tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal.



Price in London 7/6

No. 707. 'Tabloid' First-Aid (Registered) (Rex Red enamelled metal). Measurements:  $6\frac{1}{2} \times 3\frac{1}{4} \times 2$  in.

No. 712. 'TABLOID' Brand FIRST-AID (Registered)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron Oil, plaster, protective skin, pins, etc., and six tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal.



No. 712. 'Tabloid' First-Aid (Registered) (Brewster Green enamelled metal). Measurements:  $6\frac{1}{2} \times 3\frac{1}{4} \times 2$  in.

Price in London, 10/=



## \* TABLOID \* FIRST-AID

The medicinal contents of these cases are selected in view of emergency requirements, but, if desired, they can be fitted with 'Tabloid' and 'Soloid' Brand products selected by the purchaser's physician, so that a prescribed course of treatment may be continued whilst travelling.

## No. 715. 'TABLOID' Brand FIRST-AID (Registered)



Price in  
London  
10/6

No. 715. 'Tabloid' First-Aid (Registered) (Black japanned metal)  
Measurements:  $7\frac{1}{2} \times 4\frac{1}{4} \times 2$  in.

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Sal Volatile, Carron Oil, gutta percha tissue, plaster, protective skin, scissors, pins, etc., and eight tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised or black japanned metal.

## No. 723. 'TABLOID' Brand FIRST-AID (Registered)

Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' 'Hazeline' Cream, Sal Volatile, Carron Oil, lancet, tourniquet, gutta percha tissue, plaster, protective skin, scissors, pins, etc., and nine tubes of 'Tabloid' and 'Soloid' Brand products.

In Rex Red, Royal Blue or Brewster Green enamelled metal, or in aluminised metal. (See illustration overleaf)



*For description,  
see previous page*

**Price in London**  
**35/-**

No. 723. 'Tabloid' First-Aid (Registered) (Royal Blue enamelled metal)  
Measurements:  $8 \times 5\frac{1}{2} \times 2\frac{1}{4}$  in.

**No. 905. 'TABLOID' Brand PHOTOGRAPHIC OUTFIT**  
*(Registered)*

A complete compact chemical outfit for developing and fixing plates, films, bromide or gaslight papers, and for toning and fixing P.O.P.



Contents make over one-and-a-half gallons of solution.

In Rex Red, Royal Blue, Imperial Green or Bright Scarlet enamelled metal, or in black japanned metal,

**Price in London, 5/-**

No. 905. 'Tabloid' Photographic Outfit (Registered). (Bright Scarlet enamelled metal). Measurements:  $4 \times 4 \times 2\frac{1}{2}$  in.

The compactness and portability of this case render it particularly suitable for the busy Journalistic Photographer and for the War Correspondent.

*For details of 'Tabloid' Photographic Products, see also next page*



## PHOTOGRAPHY IN JOURNALISM

Photography has assumed in recent years a most important place in journalism. The realism of the camera adds materially to the effectiveness of the word-picture even when it concerns home news, whilst for the war correspondent and travelling journalist it is essential that pictorial records should supplement the pen.

The Handmaid  
of Journalism

The difficulty, especially for the journalist in war or abroad, has been that photography demanded a considerable addition to the bulk of his equipment, and the results were uncertain, owing chiefly to difficulties with sensitive chemicals. To-day the camera-maker is able to produce instruments of surprising compactness and the chemist is able to offer the journalist chemicals which occupy a minimum of space and achieve the maximum of efficiency.

Photography  
in War and  
Travel

'TABLOID' Photographic Chemicals are pure chemicals compressed into small bulk, but yet more readily soluble than the same chemicals in crystallised form. These products each contain a precise weight, so that the trouble of weighing or measuring is entirely obviated. Simply dropped into a measure-glass containing the necessary quantity of water, they disintegrate and dissolve with remarkable rapidity.

Chemical  
difficulties  
solved

The advantages which 'Tabloid' chemicals possess in home use are intensified when development and similar operations have to be conducted under trying conditions. This wonderful compactness is shown by the illustration opposite. A complete chemical outfit of 'Tabloid' products is comfortably carried in the pocket or wallet without danger of trouble consequent on the breakage of bottles of fluids.

The fact that 'Tabloid' Photographic Chemicals will retain their activity unimpaired, with ordinary care, in all climates accounts for their successful use by the leading *War Correspondents*, *Explorers* and travellers of modern days.

Not only do 'TABLOID' Photographic Chemicals rid development, toning and other processes of all the uncertainties which accompany the use of impure chemicals and stale solutions, but



they also remarkably simplify these operations, and impart to them a scientific precision which cannot otherwise be obtained.

All developers and chemicals essential for the practice of photography at home and abroad are issued as 'Tabloid' products, but to meet the special needs of those who, like journalists, travellers and war correspondents, require the utmost condensation and the widest utility in the equipment they carry, Burroughs Wellcome & Co. have issued, as the results of special research and wide experience, a developer which is universal in utility and unique in compactness. This is 'Tabloid' 'RYTOL' Universal Developer. It is so compact that the materials for 88 ounces of solution occupy only the same space as *one* ounce of fluid. It is so universal in application that it will develop plates, films, bromide and gaslight papers as well as lantern slides with equal facility and equal certainty. It makes a bright clear solution even with water which with ordinary chemicals becomes cloudy and discoloured. The importance of this to travellers who are forced to use whatever water is available will be readily appreciated.

The Ideal  
developer for  
Journalists  
and War  
Correspondents

#### CORRECT EXPOSURE IN ALL LANDS

The journalistic photographer and correspondent has to be sure of his exposure in all parts of the globe and under a great variety of conditions. He must make certain of securing records of events which will not recur. He must be able to decide on the correct exposure quickly and under a wide variation of place and circumstance. To meet this need, Burroughs Wellcome & Co.'s photographic experts have condensed the results of their special study of the question of exposure into a pocket-book known as THE WELLCOME PHOTOGRAPHIC EXPOSURE RECORD, and have combined with their own experience that of Journalists, War Correspondents and Travellers in all parts of the globe from the Arctic to the Antarctic. Many methods have been devised for ensuring correct

Certainty in  
exposure  
essential to the  
journalist

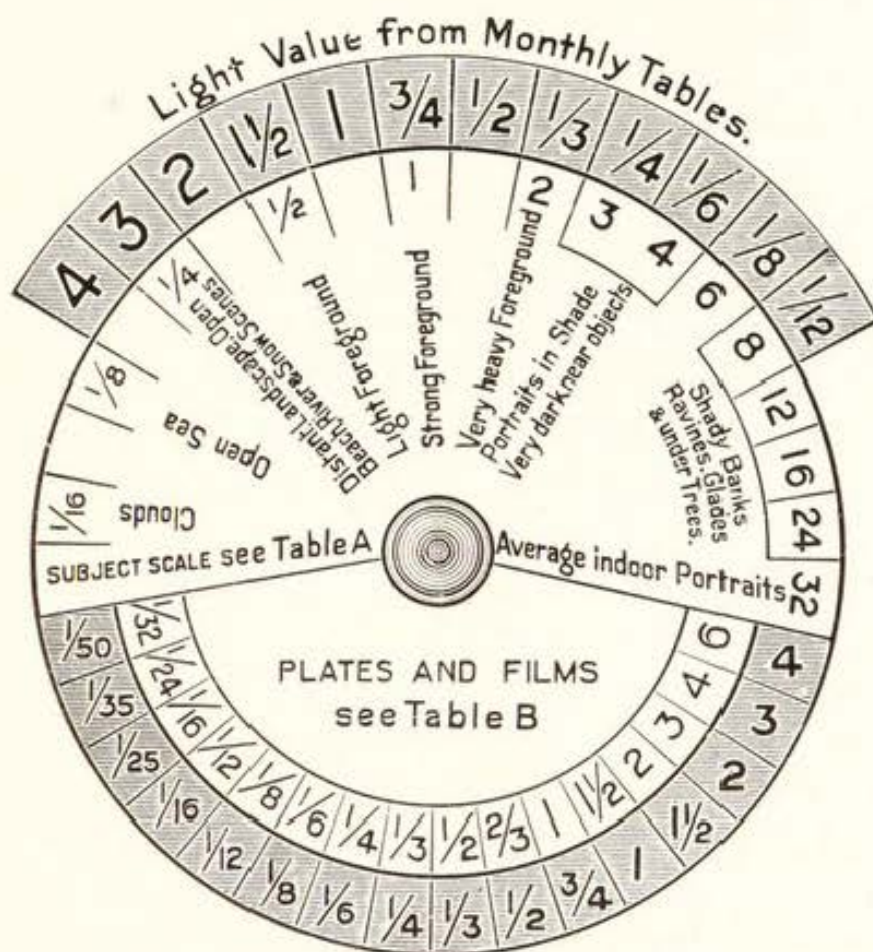


exposure—some requiring complicated calculations, others the use of elaborate tables or special apparatus. The simplest and most certain method is provided by the ingenious mechanical Calculator contained in each copy of THE WELLCOME EXPOSURE RECORD. Its essential feature is a disc, *one* turn of which tells the correct exposure at a glance.

The simple way

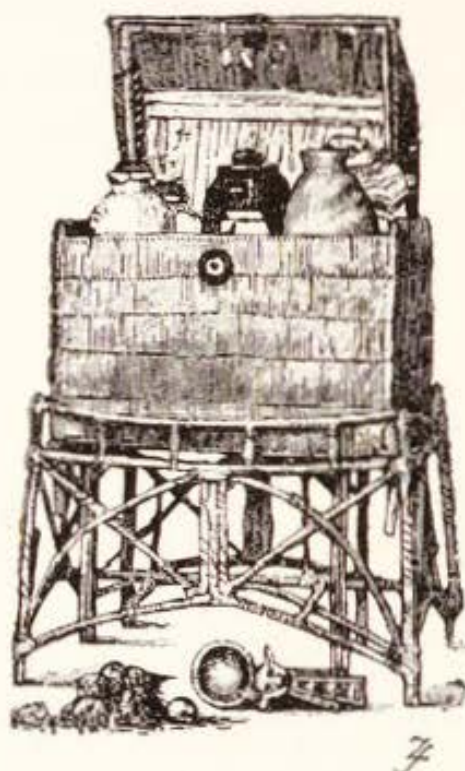
The illustration here shown makes its simplicity clear. The central white portion is the revolving disc which registers with the two fixed scales, shown in tint. Facing the Calculator are

tables giving light values, so arranged that the table for each month comes to the front in its proper season. The Calculator is set by turning the disc until the subject to be photographed registers with the figure representing the light value. That *one* turn is all that is necessary. In addition to thus



providing an easy way of calculating correct exposure, THE WELLCOME EXPOSURE RECORD is a pocket note-book and encyclopædia of photographic information. There are three Editions—(1) Northern Hemisphere, (2) Southern Hemisphere, (3) United States of America. These editions give the information necessary for correct exposure in all parts of the world.





THE MEDICINE CHEST OF  
QUEEN MENTU-HOTEP, WHO LIVED 2,200 B.C.

The massive outer case for the chest is shown on the left. It is composed of wood, decorated with hieroglyphics, amongst which are the royal cartouche and the figure of a crouching jackal.

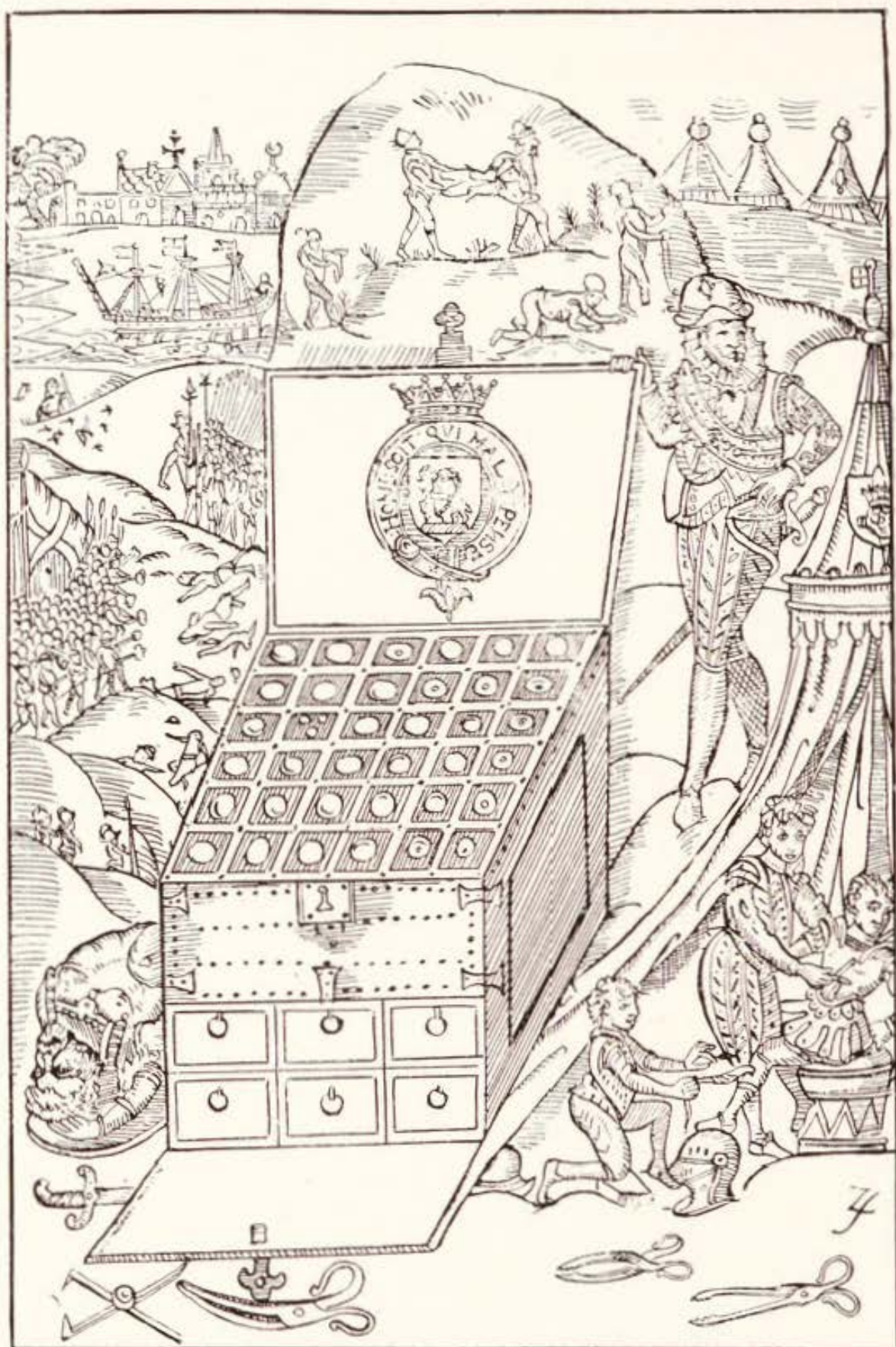
The chest itself is depicted on the right. It is composed of plaited papyrus reeds, and is supported on a stand. The chest is divided into six compartments, each containing a beautifully-shaped medicine jar of oriental alabaster. Various medicinal roots, and a wooden spoon, the handle of which is ornamented with the head of Hathor, were discovered in the chest.

This unique Egyptian medical equipment was discovered at Thebes, and demonstrates the huge bulk and cumbersome fittings, combined with paucity of supplies, which have been characteristic of medical outfits from the days of the Pharaohs until the introduction of 'Tabloid' products. The modern medical man armed with a 'Tabloid' brand Pocket-Case carries a scientific therapeutic equipment, the equivalent of which in the drugs of antient Egypt could be transported only by a regiment of slaves.



[Go Back to INDEX \(PDF p. 10\)](#)

HISTORICAL  
MEDICAL EQUIPMENTS  
USED IN  
MILITARY, GEOGRAPHICAL  
AND  
JOURNALISTIC EXPEDITIONS



## MILITARY MEDICINE CHEST—1588

Fabricius, a noted Swiss physician of the XVI century, recommended that the military chest should be furnished with no less than 362 varieties of medicine, some of which contained as many as 64 ingredients. The complexity of arrangement, the huge bulk and great weight, the liability to breakage, and the complicated inconvenience of medicine chests persisted until the introduction of 'Tabloid' Medical Equipments.





**THE SMALLEST MEDICINE CHEST IN THE WORLD**

This tiny gold medicine chest is fitted with twelve square medicine chest bottles containing 300 doses of 'Tabloid' Brand Medicaments, equivalent to 15 pints of fluid medicine.





'TABLOID' MEDICAL AND FIRST-AID EQUIPMENTS  
Have reached the North Pole, and as near to the South Pole as  
man has gone

# HISTORICAL MEDICAL EQUIPMENTS

## FOR MILITARY, GEOGRAPHICAL AND JOURNALISTIC EXPEDITIONS

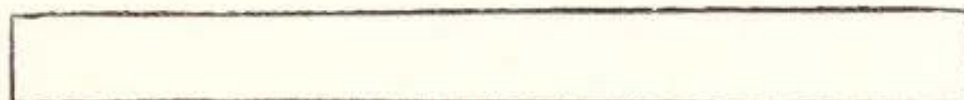
THE Medical Equipments of the present day differ notably from those of olden times in two distinct directions—diminished bulk, and in purity and efficacy of content. This improvement has only been effected in the last quarter century and mainly by B. W. & Co.; before that time, campaigning medicine chests had to be either of enormous and unwieldy size, or, if small, they could contain only the most meagre supplies.

In the Middle Ages, owing to the great variety and bulky nature of the remedial agents used, the medicine chests employed in military campaigns assumed enormous proportions, and it was not until the middle of the nineteenth century that progress was made towards reducing the bulk of campaigning medical outfits.



Size of one product of 'Tabloid'  
Cinchona Tincture, min. 30

Bulky yet  
inadequate  
equipments



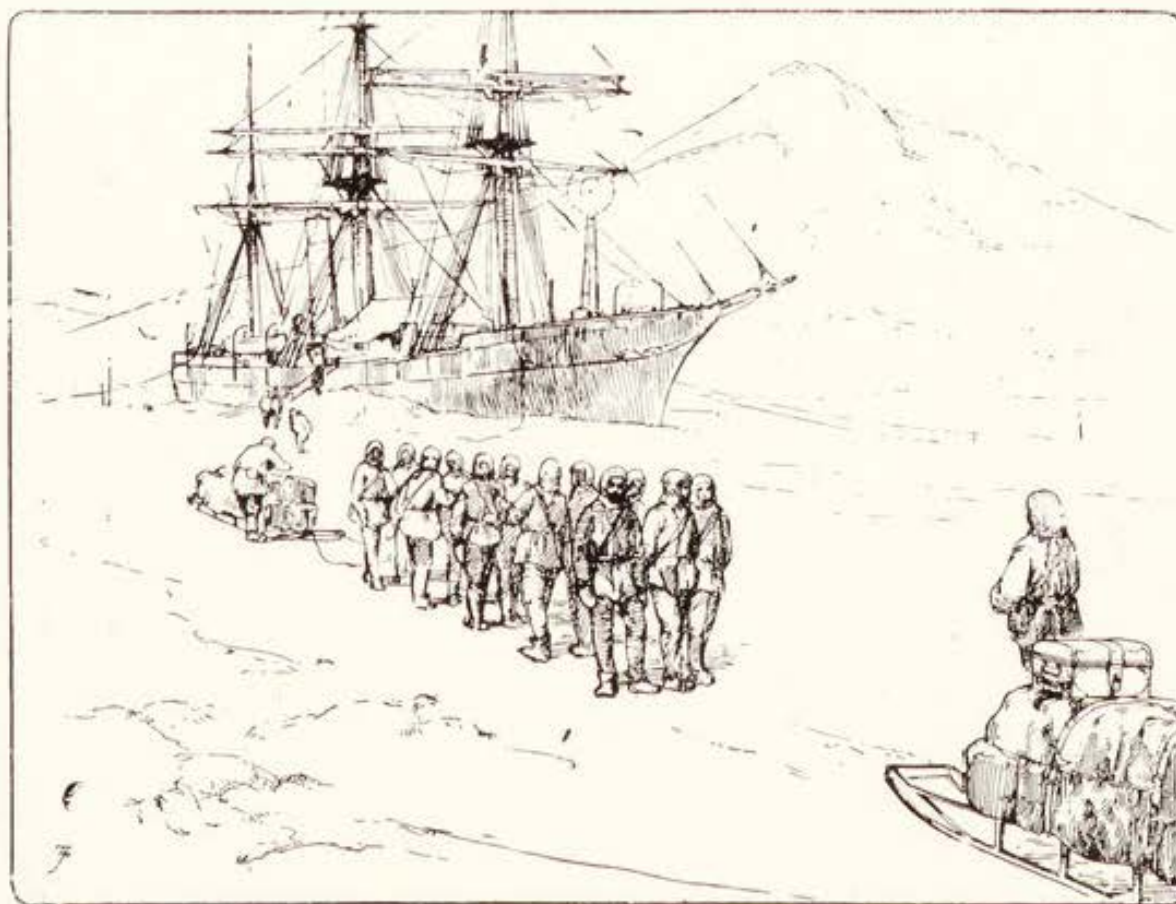
Length of 30 min. tube of same  
diameter as 'Tabloid' product

Early explorers, particularly in Africa, found the difficulties of procuring suitable portable medical supplies practically insuperable, and the horrors of disease and death associated with their expeditions were almost beyond description.

"When I think [said the late Sir H. M. STANLEY, in the course of one of his lectures] of the dreadful mortality of Capt. TUCKEY'S Expedition in 1816, of the NIGER Expedition in 1841, of the sufferings of BURTON and SPEKE, and of my own first two expeditions, I am amazed to find that much of the mortality and sickness was due to the crude way in which medicines were supplied to travellers. The very recollection causes me to shudder."

A famous  
Journalist  
on early  
expeditions.

Mortality  
due to crude  
medicines



'TABLOID'  
MEDICAL  
EQUIPMENTS

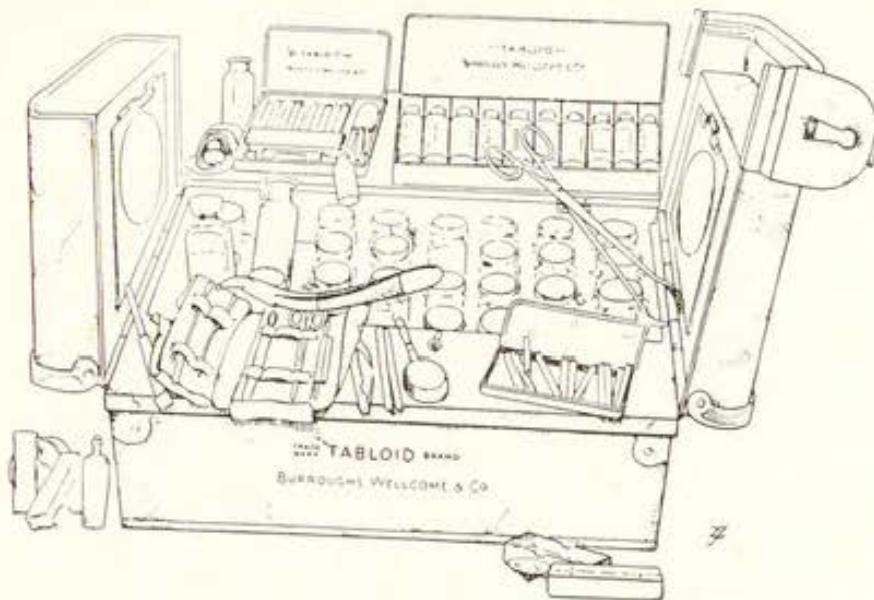
IN ARCTIC  
AND  
ANTARCTIC  
EXPLORATION



That a very marked change has taken place can be gathered from a more recent speech of this eminent explorer and journalist, in which he said :—

In my early expeditions into Africa, there was one secret wish which endured with me always, and that was to ameliorate the miseries of African explorers. How it was to be done I knew not; who was to do it, I did not know. But I made the acquaintance of Messrs. BURROUGHS WELLCOME & Co. As soon as I came in sight of their preparations and their works, I found the consummation of my secret wish. On my later expeditions I had all the medicines that were required for my black men, as well as my white men, beautifully prepared, and in most elegant fashion arranged in the smallest medicine chest it was ever my lot to carry into Africa.

B. W. & Co.  
solved the  
problem



One of the 'TABLOID' BRAND MEDICINE CHESTS carried by the late Sir H. M. STANLEY through "Darkest Africa," and brought back, after three years' journey, with the remaining contents unimpaired.

In his books, *Founding the Congo Free State* and *In Darkest Africa*, the late Sir H. M. STANLEY wrote in the very highest terms of 'Tabloid' Medical Equipments.

Amongst other cases used during STANLEY'S travels is the famous "Rear-Guard" 'Tabloid' Medicine Chest, which remained in the swampy forest regions of the Aruwimi for nearly four years, and more than once was actually submerged in the river. When it was brought back to London, the remaining contents were tested by the official analyst of *The Lancet* (London, Eng.), who reported that the 'Tabloid' medicaments had perfectly preserved their efficacy.

Tested by  
"The  
Lancet"



'TABLOID'  
MEDICAL  
EQUIPMENTS

IN  
MOROCCO



The late Surgeon-Major PARKE, Stanley's Medical Officer, in his *Guide to Health in Africa*, writes :—

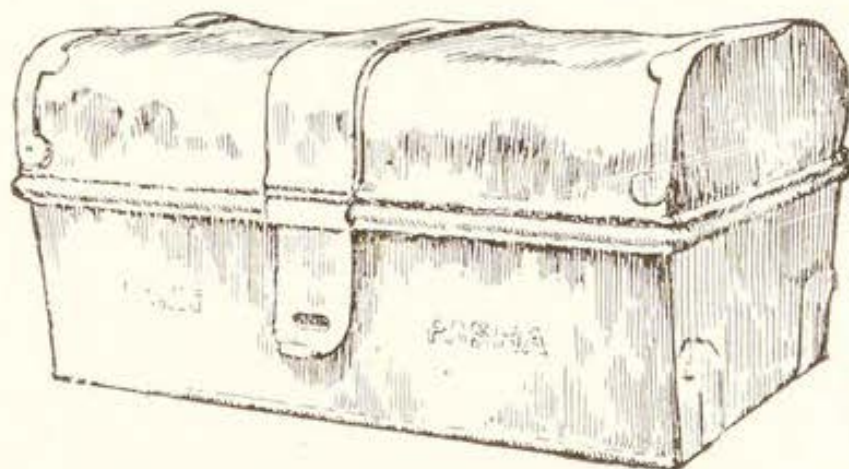
The medicinal preparations which I have throughout recommended are those of BURROUGHS WELLCOME & Co., as I have found, after a varied experience of the different forms in which drugs are prepared for foreign use, that there are none which can compare with them ['Tabloid' products] for convenience of portability in transit, and for unfailing reliability in strength of doses after prolonged exposure.

Unfailing  
reliability,  
portability  
and con-  
venience

At this point it is of interest to turn to the 'Tabloid' Medicine Chest, here illustrated, which was discovered near Kenia, in the Aruwihimi Dwarf Country. It was the last chest supplied to EMIN PASHA, GORDON'S <sup>Emin Pasha</sup> Governor of the Equatorial Soudan. This chest was taken by Arabs when EMIN PASHA was massacred in 1892, and was recaptured by BARON DHANIS, Commandant of the Congo Free State troops, after the battle of Kasongo. It was subsequently stolen by natives, and finally recovered by an officer of the Congo Free State, and returned to BURROUGHS WELLCOME & Co.

The following is a copy of EMIN PASHA's letter written to BURROUGHS WELLCOME & Co. on receiving the chest :—

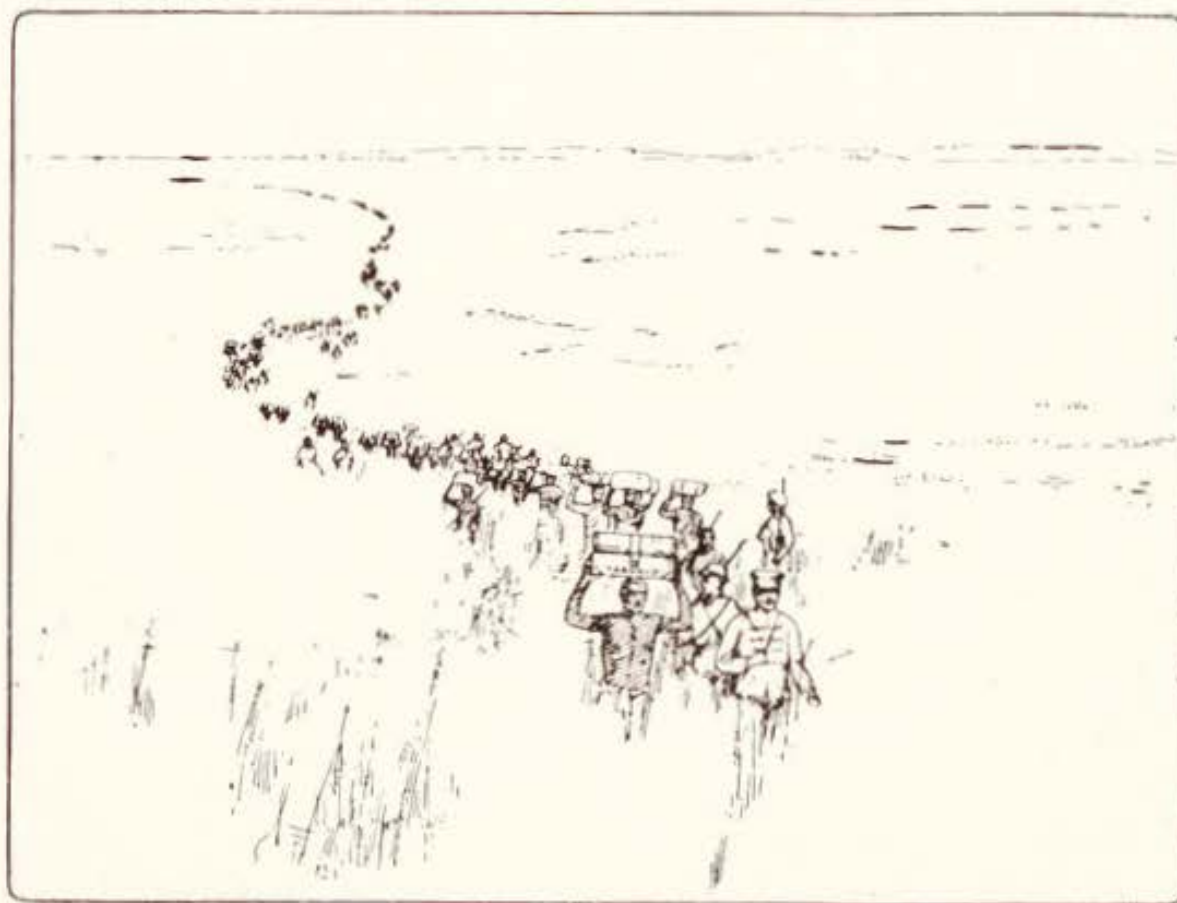
Gentlemen,—I found the medicine chest you forwarded me fully stocked. I need not tell you that its very completeness made bound my heart. Articles like those could not be made but at the hand of the



EMIN PASHA'S 'TABLOID' BRAND MEDICINE CHEST

greatest artists in their own department. If any one relieved from intense pain pours out his blessings, they will come home to you.





'TABLOID'  
MEDICAL  
EQUIPMENTS

IN  
CENTRAL  
AFRICA

I should like to expatiate somewhat longer on the intrinsic value, but sickness preventing me to do so. I wish you to believe me,

*Yours very faithfully*

*Dr Emin Pasha*

Another case associated with Stanley is the raw-hide 'Tabloid' Medicine Case used by Thomas Stevens, the well-known journalist who travelled round the globe on a bicycle, and was the hero of other pioneer exploits in different parts of the world. Stevens was the first to greet the great explorer on his return to civilisation, and during his twelve months' journeyings in Masailand and German East Africa, was greatly impressed with the portability

Thos.  
Stevens'  
'Tabloid'  
Medicine  
Case



THOMAS STEVENS' 'TABLOID' BRAND MEDICINE CASE

and compactness of his medical outfit, and with the efficacy of its contents. In his book, *Scouting for Stanley in East Africa*, he wrote: "Stanley, in recommending these Medicines ['Tabloid' products], has earned the gratitude of every man who goes to a tropical country."

A history of all the 'Tabloid' equipments associated with African exploration would, of itself, make a large volume, and it is only possible to make brief mention of a few other instances of their use.



'TABLOID'  
MEDICAL  
EQUIPMENTS

IN  
EGYPT



That 'TABLOID' EQUIPMENTS excel for military purposes has been abundantly demonstrated during various British and foreign military campaigns. The following is an extract from the Official Government Report, <sup>Military expeditions</sup> made by the Chief Medical Officer of the last BRITISH MILITARY EXPEDITION to ASHANTI, on the 'Tabloid' Brand Medical Equipment which was supplied by BURROUGHS WELLCOME & Co.:—

The supply of medicines, both as to quality and quantity, left nothing to be desired. There was no scarcity of anything. The 'Tabloid' medicines were found to be most convenient and of excellent quality. To be able to take out at once the required dose of any medicine, without having to weigh or measure it, is a convenience that cannot be expressed in words. Time is saved to an extent that can hardly be realised, and so is space, for a fitted dispensary, or even a dispensary table, is unnecessary. The quality of medicines was so good that no other should be taken into the field. The cases supplied are almost ideal ones for the Government. They are light, yet strong, and the arrangement of the materials and medicines is as nearly perfect as possible.

No delay to weigh or measure

Quality so good, no other should be taken into the field

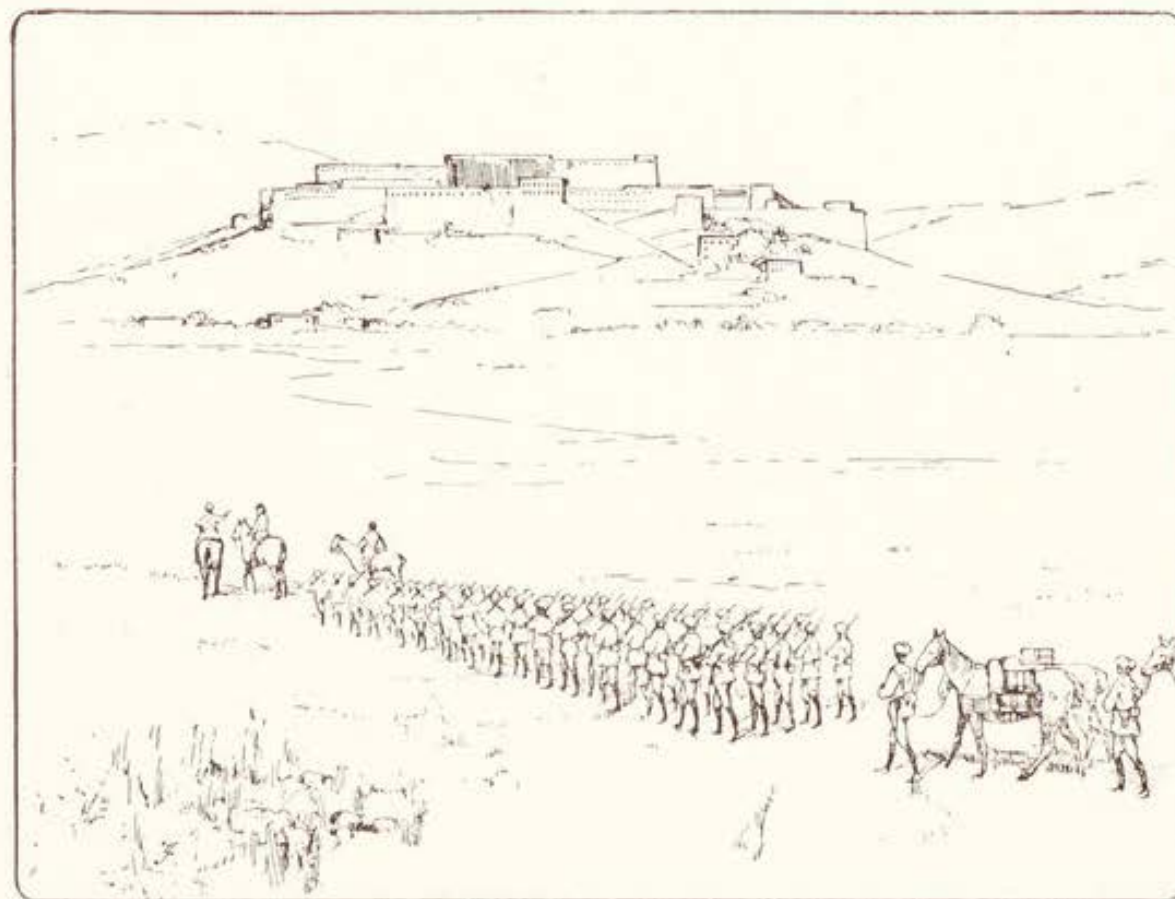
It is instructive to compare the experience of this Expedition with that of the WOLSELEY ASHANTI EXPEDITION of 1873, fitted out according to old-time methods. The suffering and loss of life were then terrible, for want of suitable medical equipments.

Without exception, 'Tabloid' Medical Equipments have been used in all the campaigns of the last twenty-five years, and have played an important part in combating the diseases which seem inseparable from an army in the field.

During the American war with Spain, in Cuba and the Philippines, 'Tabloid' Medical Equipments were specially ordered for, and used by, the U.S. Army and Navy.

The Expedition which, under the command of LORD KITCHENER, defeated the Khalifa and reconquered the Soudan, was supplied with 'Tabloid' Medical Equipments.

An illustration of one of the 'Tabloid' Medical Equipments specially designed for, and supplied to, the British Colonial



'TABLOID'  
MEDICAL  
EQUIPMENTS

IN  
THIBET



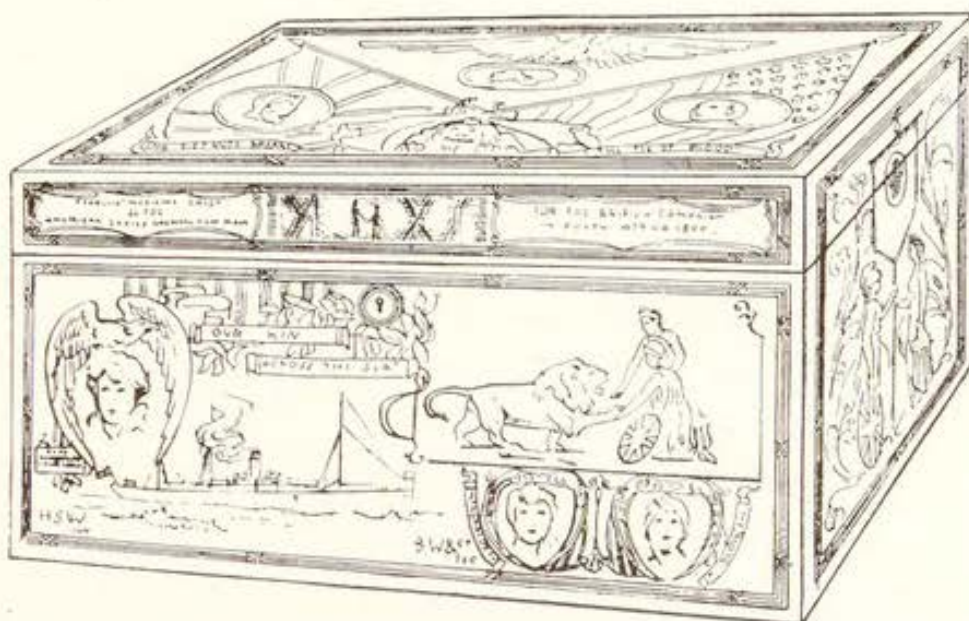
Forces for use in the recent South African Campaign is here shown. Similar cases were designed for, and supplied to, the CITY OF LONDON IMPERIAL VOLUNTEERS and IMPERIAL YEOMANRY.



One of the 'TABLOID' BRAND MEDICINE CASES specially designed for, and supplied to, the troops from the various British Colonies, for use in the South African Campaign.

The equipment of the American Hospital Ship *Maine*, and the valuable services it rendered in connection with the campaigns in South Africa and in China, are so recent as to be within the memory of all. The whole of the medical outfit was supplied by BURROUGHS WELLCOME & Co.

Hospital  
Ship  
"Maine"



One of the 'TABLOID' BRAND MEDICINE CHESTS specially designed for, and supplied to, the Hospital Ship *Maine*.





'TABLOID'  
MEDICAL  
EQUIPMENTS

IN  
CHINA

Referring to this equipment, *The Lancet* (London, Eng.) reported :—

The whole of the medical outfit has been supplied by Messrs. Burroughs Wellcome & Co. One of the medicine chests supplied by this firm is in tooled leather, designed by Mr. Henry S. Wellcome.

The following description of this chest may be of interest :—

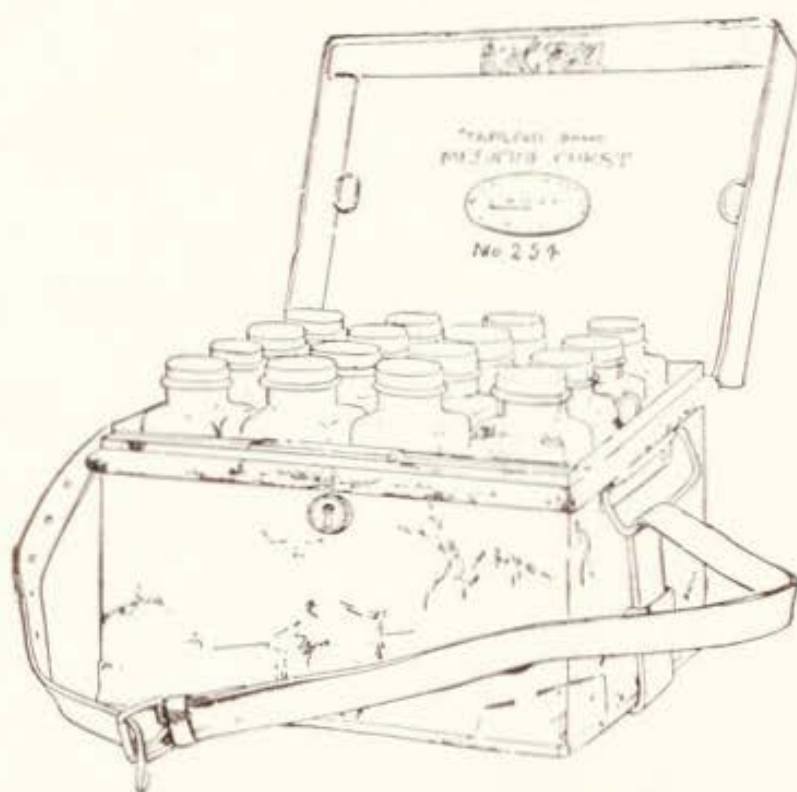
The chest is made of oak covered with Carthaginian cow-hide, tooled by hand, with chaste designs successfully representing in allegory the alliance of Great Britain and America in the succour of the wounded. On the top panel appear the Union Jack and the Stars and Stripes entwined, portraits of Queen Victoria, George Washington and President McKinley; also representations of the British Lion and American Eagle. The front panel bears portraits of Lady Randolph Churchill (Mrs. George Cornwallis-West), the hon. secretary and the hon. treasurer of the fund; a picture of the ship itself; a scene representing the British Lion, wounded by an arrow which lies at his side, being ministered to by Britannia and Columbia. A frieze is formed by a representation of an American Indian wampum, upon which Brother Jonathan and John Bull are depicted hand-in-hand. The panel at each end of the chest represents Britannia and Columbia supporting a banner bearing the Red Cross, and on the panel at the back the British Regular and Colonial Lancers are shown charging a Boer force. Keble's line, "No distance breaks the tie of blood," and Bayard's phrase, "Our kin across the sea," are inscribed on the chest. This beautiful cabinet contains a number of smaller cases fitted with 'Tabloid' and 'Soloid' products and 'Tabloid' Hypodermic Outfits, and is in itself a compact and complete dispensary.

In addition to their adoption by military and naval authorities, 'Tabloid' Medical Equipments have been used by the War Correspondents who have accompanied all modern expeditions.



The conclusive proofs afforded by all these campaigns and expeditions of the incomparable utility of the B. W. & Co. equipments, under circumstances of the most trying nature, naturally led to their still more extensive employment in South Africa during the late war. The trying conditions of transport and the climatic influences were just such as 'Tabloid' Equipments and 'Tabloid' Equipments only, had been proved, by earlier experience, to be capable of resisting. Constant references were made to the adequacy and efficiency of the equipments supplied.

#### A WAR CORRESPONDENT'S EQUIPMENT



THE LATE G. W. STEEVENS' 'TABLOID' BRAND MEDICINE CHEST

An equipment of the greatest personal interest is the chest here illustrated. It was formerly the property of the late G. W. Steevens, and used by him throughout the G. W. Steevens war in Greece, the two Soudan campaigns, and his journey in India. In the South African War the same chest did good service until this brilliant writer's life was brought to a premature end during the siege of Ladysmith.



## IN ARCTIC AND ANTARCTIC EXPLORATION

In the hitherto unsuccessful endeavours to reach the Poles, and in the exploration of Arctic and Antarctic lands, 'Tabloid' Medicine Chests have taken a pioneer position, and continue to hold supremacy.

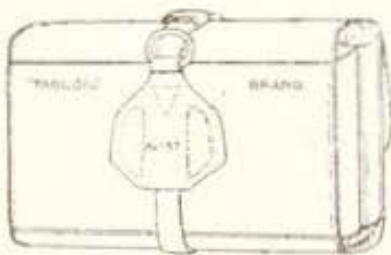
The 'Tabloid' Belts and other Medical Equipments supplied to NANSEN for his journey in the *Fram*, and those used by the JACKSON-HARMSWORTH ARCTIC EXPEDITION, have been added to the historic collection of BURROUGHS WELLCOME & Co.

A famous  
journalistic  
enterprise



One of the 'TABLOID' BRAND MEDICINE BELTS carried by NANSEN on his Arctic Expedition.

The ITALIAN ARCTIC EXPEDITION, commanded by the DUKE OF THE ABRUZZI, found that, despite the fact that the northern latitude of  $86^{\circ} 33' 49''$  was reached, the



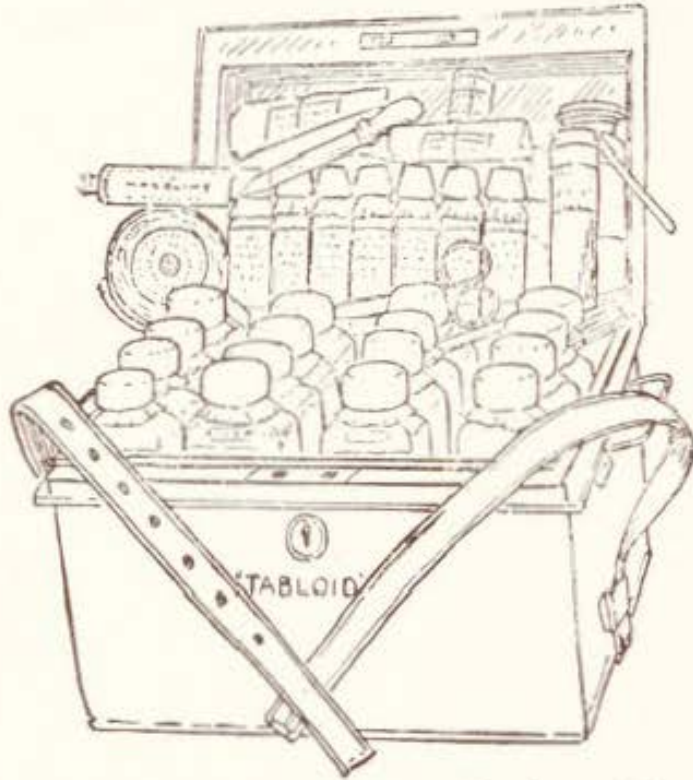
One of the 'TABLOID' BRAND MEDICINE CASES carried by the DUKE OF THE ABRUZZI's Polar Expedition.

'Tabloid' Medicine Chests and Cases with which the Expedition was equipped were brought back with their remaining contents quite unaffected by the rigour of the climate.

COMMANDER PEARY, to whose record stands the achievement of reaching the farthest northern latitude, writing from Etah, Greenland, reports:—

Burroughs Wellcome & Co. 'Tabloid' Medicine Cases and supplies have proven invaluable.

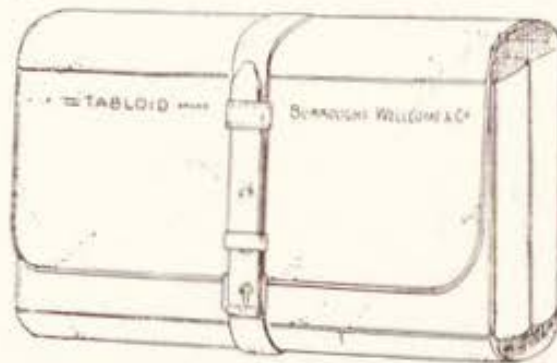
The entire medical outfit of the National Antarctic Expedition was furnished by Burroughs Wellcome & Co.,



One of the 'TABLOID' BRAND MEDICINE CHESTS used by COMMANDER R. E. PEARY

and on the return of the *Discovery*, with the members of the Expedition on board, the medical officer made a highly satisfactory report on the 'Tabloid' Medical Equipment.

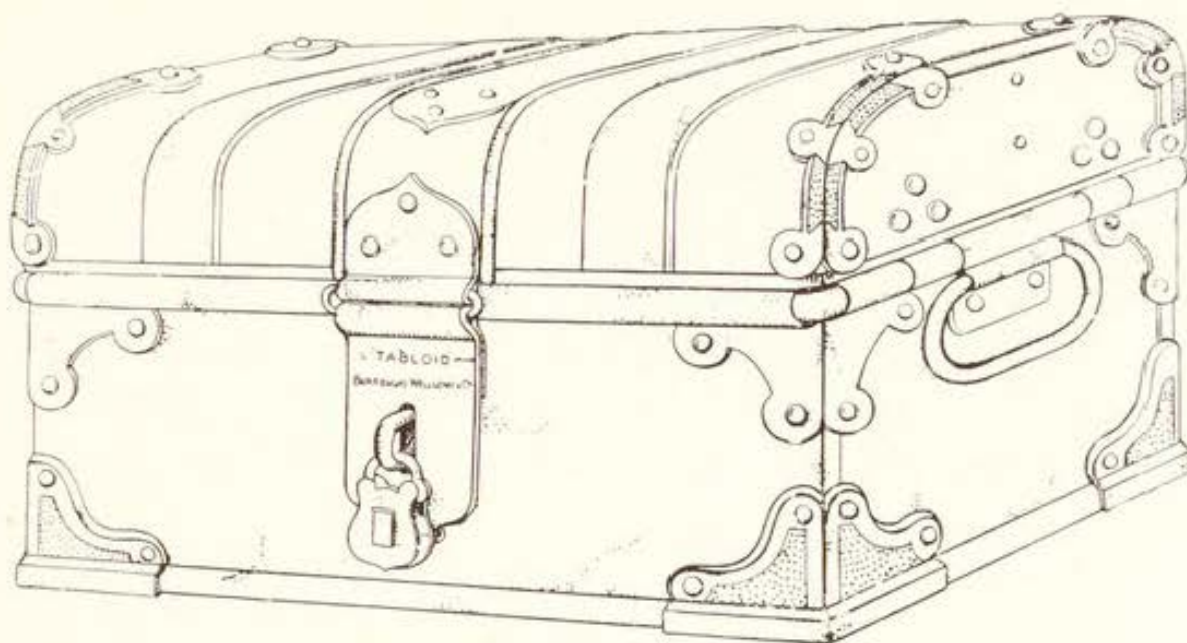
In August, 1901, the *Discovery* left England, and, in the following January, crossed the limit of the Antarctic Circle.



One of the 'TABLOID' BRAND MEDICINE CASES carried by the National Antarctic Expedition.



Having passed the farthest eastward point attained by Ross sixty years before, the explorers discovered a new land, which they named King Edward VII. Land. One of the most noteworthy features of the Expedition was the arduous sledge



journey undertaken by the commander, Captain SCOTT, accompanied by Lieutenant SHACKLETON and Dr. WILSON. This journey over the ice occupied three months, and the latitude of  $82^{\circ} 17'$  South was reached.

On sledge journeys the question of weight is of great moment. The traveller on such occasions must carry but the barest necessities, and of these the lightest procurable. The medicine chest is an important item, for upon the efficacy of its contents the lives of the explorers may depend. Every drug carried must be of the utmost reliability, in the most compact state, and capable of withstanding an extremely low temperature. Reliability essential

That 'Tabloid' Medical Equipments fulfil all requirements has been proved again and again. They enable the traveller to carry a comparatively large supply of medicines, and may be used under conditions which would render the carriage and administration of ordinary preparations impossible.



To the enthusiasm of Sir CLEMENT MARKHAM, K.C.B., then President of the Royal Geographical Society, the successful organisation of the National Antarctic Expedition was largely due. Referring to the 'Tabloid' Medical Equipment of the *Discovery*, he reports:—

National Antarctic Expedition,  
1, Savile Row,  
Burlington Gardens, W.

The Medical Equipment of the Exploring Ship of the National Antarctic Expedition was entirely supplied by Messrs Burroughs Wellcome & Co., and, proved in every way most satisfactory.

The few other drugs and preparations which were taken with the Expedition were only supplied for purposes of experiment, and, can in no way be regarded as part of the medical equipment.

*Clement Markham*

27. April 1905.

DR. KÆTTLITZ, the Senior Medical Officer to the Expedition, reports:—

*Discovery*, ANTARCTIC EXPEDITION

The Medical Equipment of the *Discovery* Exploring Ship, of the National Antarctic Expedition, was entirely supplied by Messrs. Burroughs Wellcome & Co., mostly in the form of 'Tabloid,' 'Soloid' and 'Enule' preparations.

The preparations proved in every way most satisfactory, and there was no deterioration of any of them, in spite of the conditions of climate and temperature to which they were exposed. The few other drugs and preparations which were taken with the Expedition were only taken for purposes of experiment.

The cases supplied by Burroughs Wellcome & Co. to us have also been found satisfactory; the small leather one was very useful upon sledge journeys, being light and compact. The No. 251 'Tabloid' Case was used for some weeks at the camp eleven miles north of the ship, when the whole ship's company was engaged in sawing and blasting the ice, and it was found very convenient.

The other cases were useful in our cabins, etc., for a handy supply.

*Reinhold Kættlitz*

EXPERIENCE OF AN ENTERPRISING  
JOURNALIST

Mr. JULIUS PRICE, the special artist and correspondent of the *Illustrated London News*, reports that he carried his 'Tabloid' Medicine Case over 30,000 miles through Arctic regions, across Siberia, through China, Japan and America. Despite the severe wear and tear of this great journey, the case has suffered little, and the remaining contents are quite unaffected by exposure to every variety of climate.

30,000 miles  
Arid desert  
and humid  
swamps  
Extreme  
heat and  
cold



Two typical reports on 'Tabloid' Equipments are appended :—

Extract from the report of R. F. RAND, Esq., M.D., F.R.C.S., Principal Medical Officer, British South Africa Company :—

We have had Burroughs Wellcome & Co.'s "Congo" Chests, fitted with 'Tabloid' medicines, in daily use during the occupation of this country. They have proved of inestimable service.

Extract from the report of the late W. H. CROSSE, M.D., M.R.C.S., Principal Medical Officer, British Royal Niger Company :—

All these 'Tabloid' drugs are so good it is impossible for me to speak more highly of one than another. They are all of the very best quality, each drug is accurately described, and reliable. To the traveller these preparations are simply invaluable, and I would strongly advise every one coming out to the Tropics to get a full supply of 'Tabloid' medicines.

BURROUGHS WELLCOME & Co. have for many years made a special study of the requirements of travellers and expeditions, not only in respect of compactness, portability and permanence, but also in the selection of remedies necessary to combat the maladies prevalent in every climate, from the Arctic to the Antarctic.

'Tabloid' Brand Medicine Cases contain, in a small space, a complete outfit of pure drugs in doses of extreme accuracy.

They can be carried in the pocket, in the carriage or motor-car, or on the cycle, their contents being always ready for use in emergencies. They are specially valuable to the country practitioner, who is often called upon to cover long distances, and who would experience great difficulty in carrying or obtaining supplies of such medicines as he may desire to administer promptly, were it not for the convenience and portability of 'Tabloid' Brand Medicine Cases.

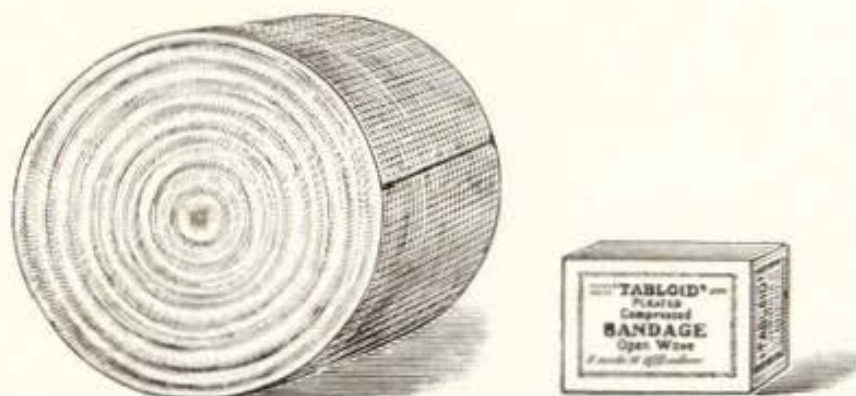


TRADE MARK 'TABLOID' BRAND  
PLEATED COMPRESSED  
BANDAGES AND DRESSINGS

Pleated Compressed Bandages and Dressings were originated and introduced by Burroughs Wellcome & Co.

'TABLOID' Bandages and Dressings provide the means of applying strictly scientific treatment, and in cases of accident enable those on the spot to render first-aid treatment should medical assistance be unavailable or delayed. Their use in such emergencies may prevent serious complications which frequently arise in minor accidents, and from the neglect of wounds, abrasions, etc.

In  
emergencies



Graphic representation showing relative bulk of an ordinary  
and a 'Tabloid' Bandage, each 6 yds.  $\times$  2-1/2 in.  
One-half actual size

'TABLOID' Bandages and Dressings are made of materials of the finest quality, very highly compressed. Each is enclosed in an efficient protective covering, thus securing freedom from all risk of contamination. For all purposes, whether at home or when travelling, they are superior to the ordinary varieties and their advantages are obvious.

Ideal for  
general  
use

NOTE.—A further important advance, original with B. W. & Co., is the issue of these 'Tabloid' Bandages and Dressings—*sterilised*. When ordering, please specify *sterilised* if so required.

“The strong thing is the just thing”

*Carlyle*

‘Tabloid’ marks the work of  
Burroughs Wellcome and Company.

The use of the word is to enable  
the physician, chemist and patient to  
get the right thing with one short  
word, instead of the firm’s long name.

If another maker applies the word  
to his product, the act is unlawful.  
‘Tabloid’ is our trade-mark.

If a vendor disregards it, in dispens-  
ing or selling, the act is unlawful—  
for the same reason.

We prosecute both offenders rigor-  
ously, in the interest of physicians,  
chemists, patients and ourselves.

Please inform us of any instance  
of either offence.

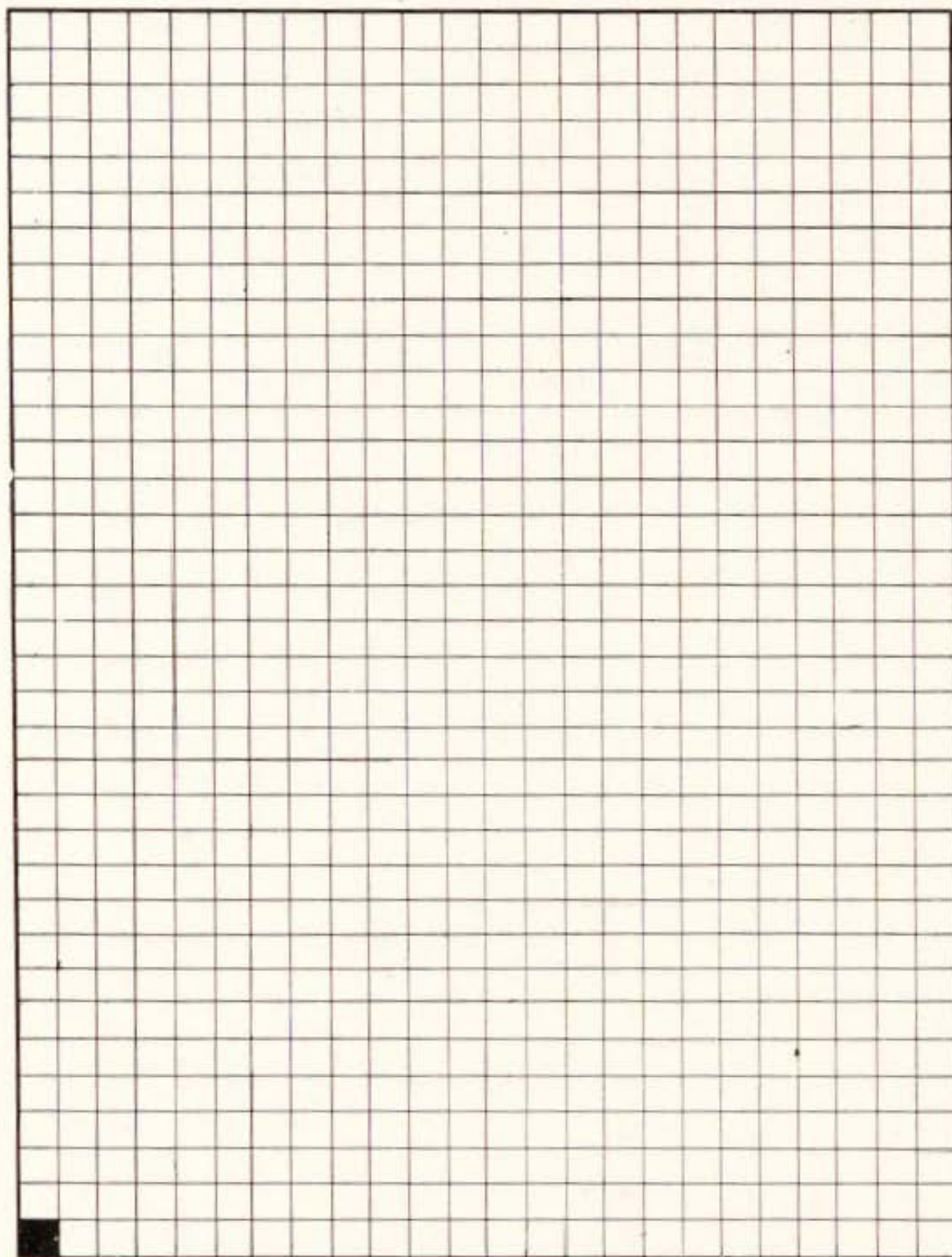
BURROUGHS WELLCOME & CO.





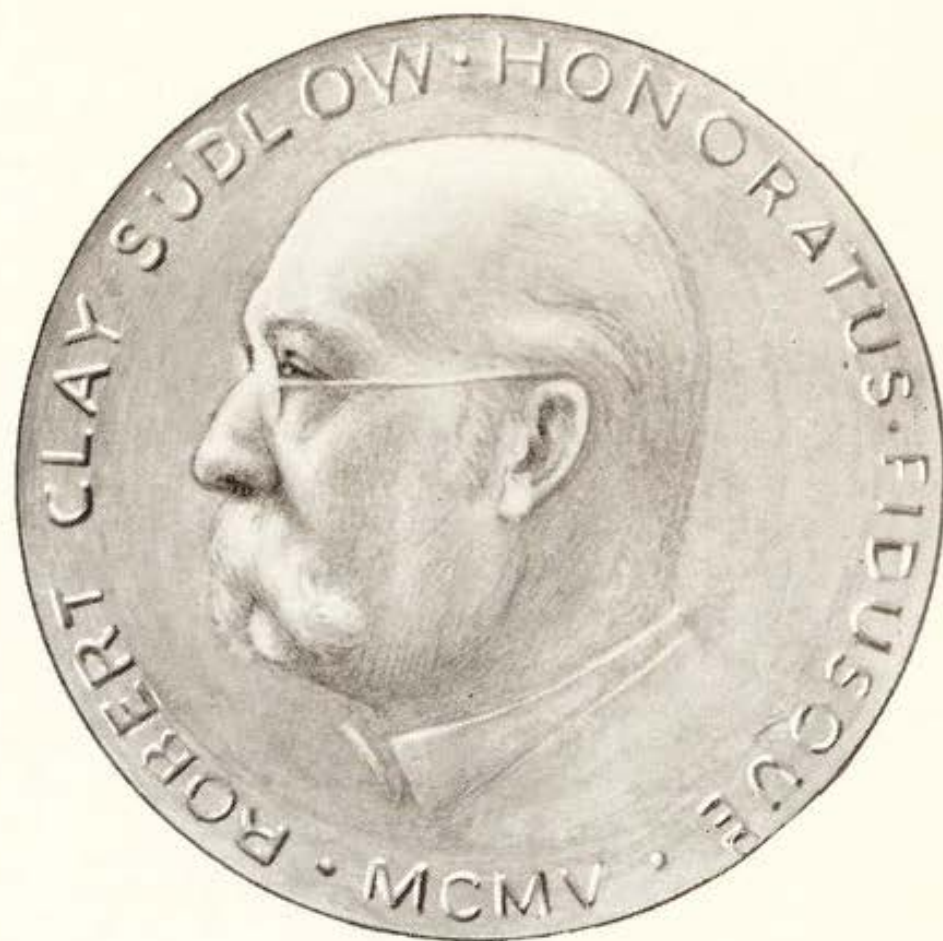
DRILL OF BURROUGHS WELLCOME & CO.'S FIRE BRIGADE.





GRAPHIC REPRESENTATION OF THE INCREASE IN THE FIRM'S  
PREMISES DURING THE QUARTER-CENTURY OF MR. SUDLOW'S  
GENERAL MANAGERSHIP

The small black rectangle represents the premises occupied when Mr. Sudlow joined the firm. In twenty-five years the premises occupied have increased more than 800 times, as represented by the white rectangles above.



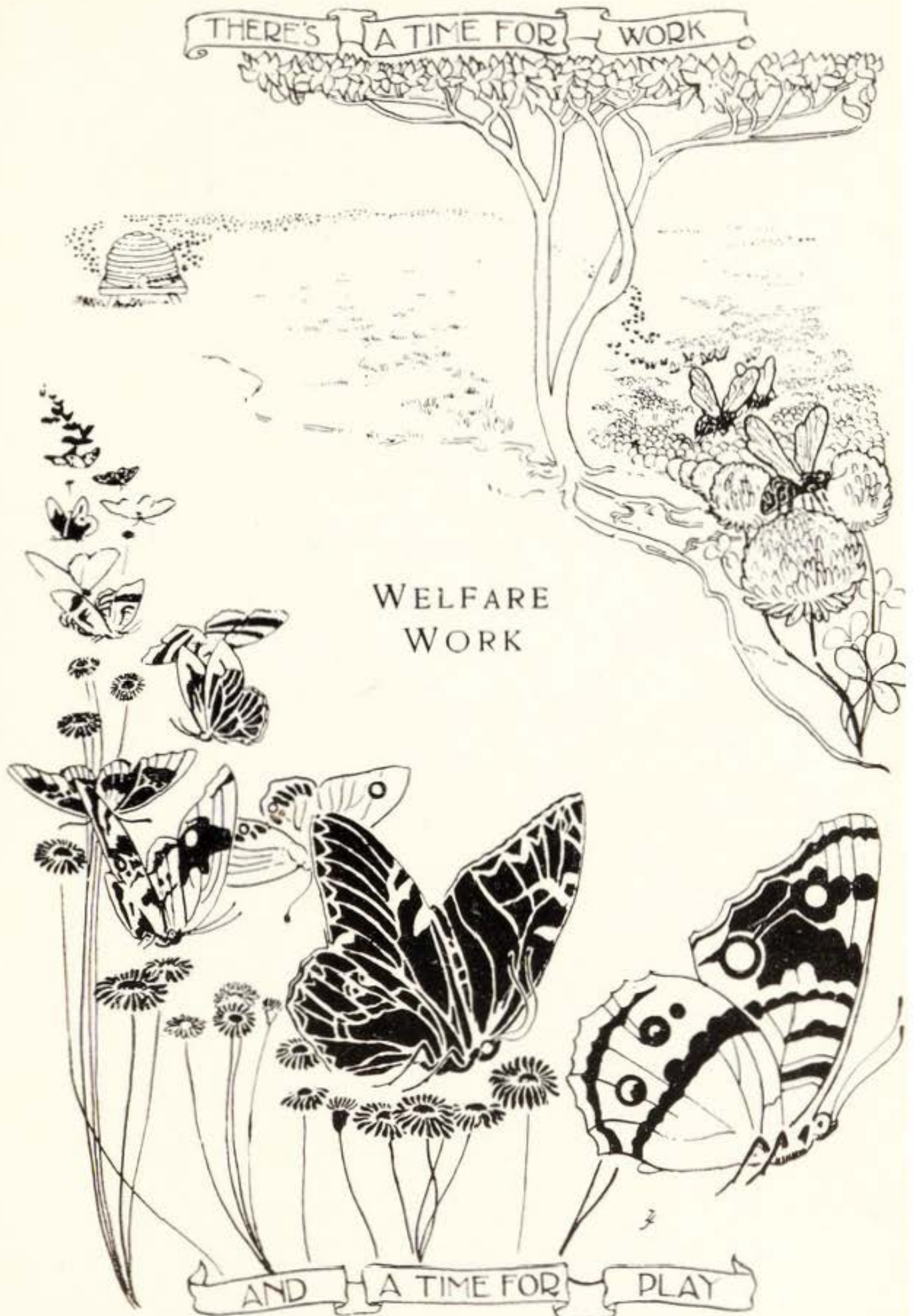
OBVERSE AND REVERSE OF A GOLD COMMEMORATION MEDAL

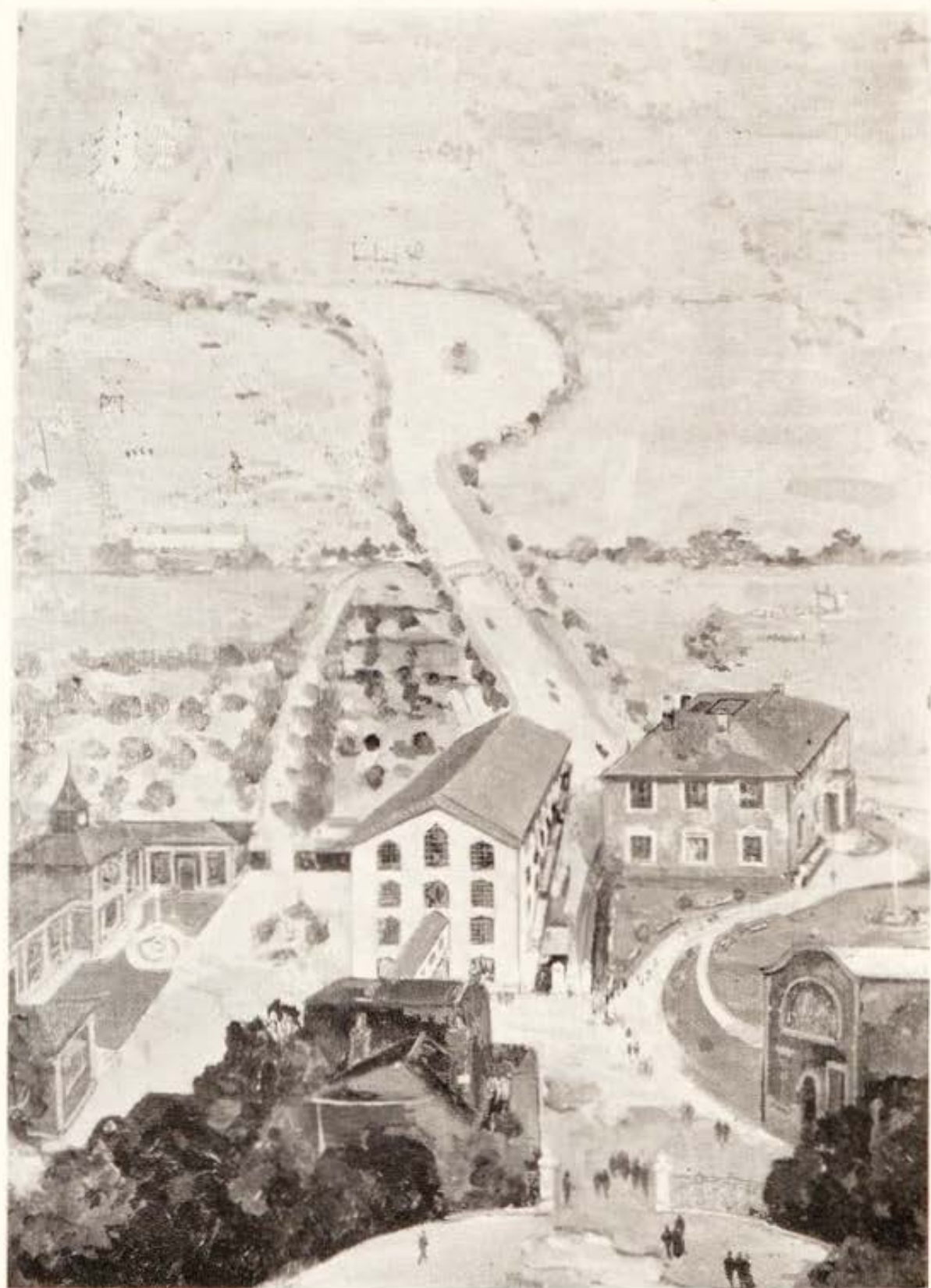
Specially designed and struck in honour of ROBERT CLAY SUDLOW, and presented to him in commemoration of his loyal and efficient services to the firm for more than a quarter of a century



BY CHEMICAL INDUSTRY WE THRIVE







BIRD'S-EYE VIEW OF WELLCOME CLUB AND INSTITUTE  
BUILDINGS AND GROUNDS

## THE WELLCOME CLUB AND INSTITUTE

“And all this house was peopled fair  
With sweet attendance, so that in each part  
With lovely sights were gentle faces found,  
Soft speech and willing service; each one glad  
To gladden, pleased at pleasure, proud to obey.”

*Sir Edwin Arnold*



“The true veins of wealth are purple—not in rock, but in flesh—and the final outcome and consummation of all wealth is in producing as many as possible full-breathed, bright-eyed and happy-hearted creatures.”

*Ruskin*

## OBJECTS OF THE WELLCOME CLUB AND INSTITUTE

From the first, Welfare Work has been a special feature with the firm. This Club and Institute is a part of the general scheme, and was founded for the benefit of the employees of BURROUGHS WELLCOME & Co. who number more than sixteen hundred of both sexes, including a large number of professional scientific workers. The premises consist of the old manor house formerly known as Acacia Hall, together with other buildings which provide libraries, reading rooms, assembly rooms, a gymnasium, and extensive grounds through which the river Darent runs.

The objects of the club are—to promote harmony and happy social intercourse amongst the employees and to supply them with a pleasant resort outside of business hours—to encourage mental and physical recreation by means of music, literary and other entertainments, technical and other instruction classes with occasional lectures, and athletics, field sports and games.

The Executive Committee of the club regulates the conduct of the club and controls the use of the river for boating, swimming, fishing, etc., as well as the library, museum, baths, games and various other features. All suitable technical journals and a large selection of newspapers, magazines, etc., are available in the reading rooms.

All employees willing to attend the DARTFORD TECHNICAL INSTITUTE have their fees paid, and the firm gives prizes through the Institute for proficiency in the technical subjects in which it is interested.



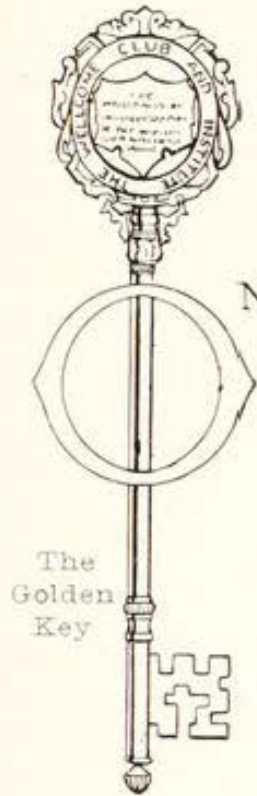
CLUB HOUSE FOR MEMBERS OF THE STAFF

Containing music room, ladies' sitting, dining, writing and dressing rooms; gentlemen's sitting, dining, writing, and smoking rooms; secretarial offices, and committee rooms



## INAUGURATION OF THE WELLCOME CLUB AND INSTITUTE, JUNE 24, 1899

*(Reprint from Press Report)*



NE of the most interesting events which have taken place in the town of Dartford for many years past was the opening of the Wellcome Club and Institute. When it is remembered that the prosperity of the town is so closely identified with that of its greatest industry, it is not surprising that Saturday's event evoked so much enthusiasm throughout the district. Messrs. Burroughs Wellcome & Co. have always been recognised as model employers, and the events of the day bore eloquent testimony not only to this kindly consideration of the welfare of their employees, but also to the precision, exactness and marvellous organisation which has always characterised their work.

The club has been founded by Mr. Wellcome, the head of the firm, to provide the employees with opportunities for recreation, and for promoting technical education. With these ends in view, he acquired the Manor House, commonly known as Acacia Hall, together with its beautiful and extensive grounds, through which flows the river Darent. The manor house itself and the adjoining buildings have been elaborately fitted and furnished to meet the new requirements. A large gymnasium and extensive baths and lavatories with the most perfect modern fittings have been built, and the grounds beautifully laid out for the purposes of enjoyment and recreation.



THE LIBRARY BUILDING AND CLUB HOUSE FOR LADY EMPLOYEES

Ground floor : ladies' tea rooms. First floor : ladies' sitting, sewing and writing rooms. Second floor : reading room and library. Third floor : general concert and lecture hall



No pains or expense have been spared in any direction, and it is doubtful if there is any body of employees in the world which can boast of so magnificent a club and pleasure park.

### THE DAY'S PROCEEDINGS

The proceedings on Saturday were favoured with perfect weather, and great credit is due to those responsible for the arrangements, which were admirably carried out. At 11 a.m., immediately after the special train conveying the London visitors steamed into Dartford station, the day's programme commenced with a fire drill at the firm's works and laboratories. From the station platform an excellent view was obtained. Sir Hiram Maxim, the distinguished engineer, who was present, timed the display and stated that the streams of water from four principal points were in full play within two minutes of the sounding of the alarm which called out the firemen.

### SERVICE AT THE PARISH CHURCH

The company then proceeded to the historic old Parish Church, which was quickly filled by the visitors and the firm's employees. The service, conducted by the Rev. E. P. Smith, Vicar of Dartford, was, although simple and undenominational in character, a beautiful and impressive ceremony, in which were appropriately included the following texts:—

“Bear ye one another's burdens, and so fulfil the law of Christ.”  
—*Gal. vi. 2.*

“And that ye study to be quiet, and to do your own business and to work with your own hands, as we commanded you; that ye may walk honestly towards them that are without, and that ye may have lack of nothing.”—*1 Thess. iv. 11 and 12.*

The service over, the party, headed by visitors and the principal members of the staff, accompanied Mr. Wellcome from the church to the gates of the club, where Mr. Sudlow, the general manager, presented his chief with a golden key.





CLUB HOUSE FOR GENTLEMEN EMPLOYEES  
Containing sitting, writing, smoking, tea rooms, etc.

Mr. Sudlow said : " Mr. Wellcome, the members of the management in London and at Dartford beg your acceptance of this key as a memento of this very interesting occasion."

Mr. Wellcome unlocked and swung open the gates, saying : " I declare this Club and Institute now open, and may God bless and prosper it." The visitors were then conducted over the club buildings and through the grounds, which were much admired.

### THE LUNCHEON

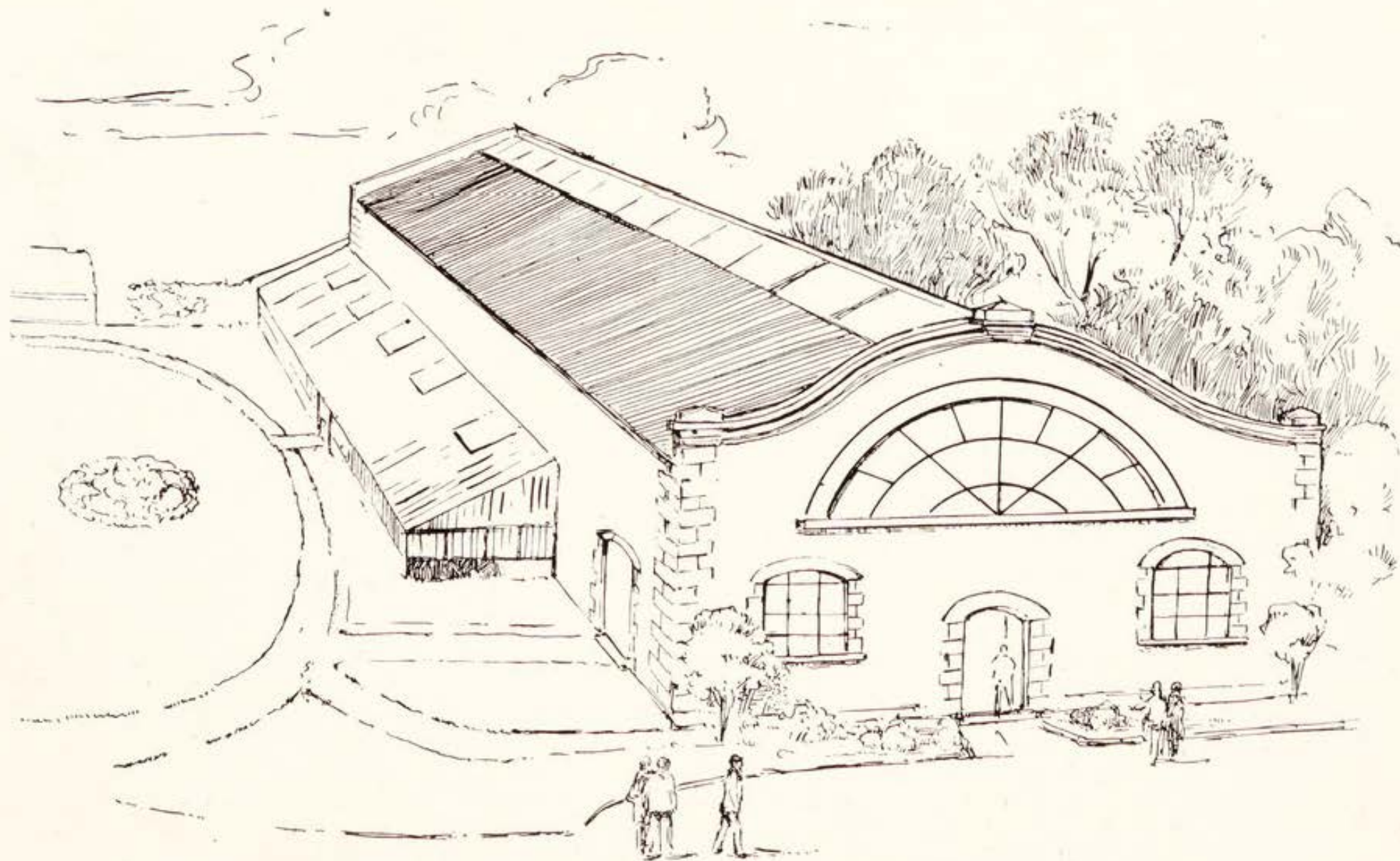
At 12-30 an adjournment was made for luncheon. About eleven hundred sat down to an excellent repast in an enormous marquee erected in the club grounds, all the company except a few visitors being employees and wives of employees. Mr. Wellcome acted as chairman and Mr. Sudlow as vice-chairman. After the loyal toasts—

### THE TOAST OF THE DAY

" THE EMPLOYEES—SUCCESS TO THE WELLCOME CLUB  
AND INSTITUTE"

THE CHAIRMAN said : " Most of those assembled here to-day are employees of the firm. People often speak to me with wonderment at the good relations which exist between the firm and its employees, and the explanation which I have always been able to give in reply to such comments is that there is mutual consideration. It is and always has been the policy of the firm to consider the welfare of everyone associated with it, and by our bearing, our warmth of feeling, and our interest in the welfare of our employees we have won consideration from them, and we have a corps of employees, which, I am proud to say, I believe surpasses any similar body of people employed by any other firm in the world.





GYMNASIUM AND ASSEMBLY ROOM

Fully equipped with all apparatus necessary for the practice of indoor athletics



" By our care in selecting those who possess not alone the required talents and qualifications, but who are also in hearty sympathy with us in our unique work, and by fostering mutual regard, we secure not only the hand work, but the heart work, of those who are associated with us. We have not only efficiency and devoted zeal amongst our great chiefs who form our Managerial Staff, and in the distinguished Directors of my Chemical Research Laboratories and of the Physiological Research Laboratories, but also expert workers as Heads of Departments, and again in the personnel of their staffs, and yet again amongst the rank and file. I must pay a special tribute to the efficiency of the Ladies' Departments, so ably presided over by the talented Lady Superintendent, ably supported by a highly-qualified staff of lady assistants, some of whom are efficient scientific workers.

" It is peculiarly gratifying to me to-day, in inaugurating this club, to feel that I meet with those associated with me heart to heart. A strong spontaneous expression has come to me from the employees which accords perfectly with my own ideas and sentiments that this club should not be regarded as a charitable institution, but should be self-supporting. I want it to be a resort and meeting place for the promotion of harmony and happiness amongst the employees—an institution for mental and physical recreation and development, where all shall be knitted closer together in personal friendship. I am certain that a charitable institution, or what is usually so-called, is not what we want. None of the employees of Burroughs Wellcome & Co., I am thankful to say, are in need of charity. They are self-respecting, self-reliant, and self-supporting, and I want them always to continue so. I am doing, and shall do, all I can practically to facilitate the work of organisation and equipment. The premises, suitably furnished and maintained, I am very gratified to offer for the purposes of the club and institute.

" I rely upon the members working hand in hand and heart to heart to make a success of this institution on a self-supporting



BRIDGE OVER THE DARENT  
Connecting the lawn with the orchard, garden and playing fields

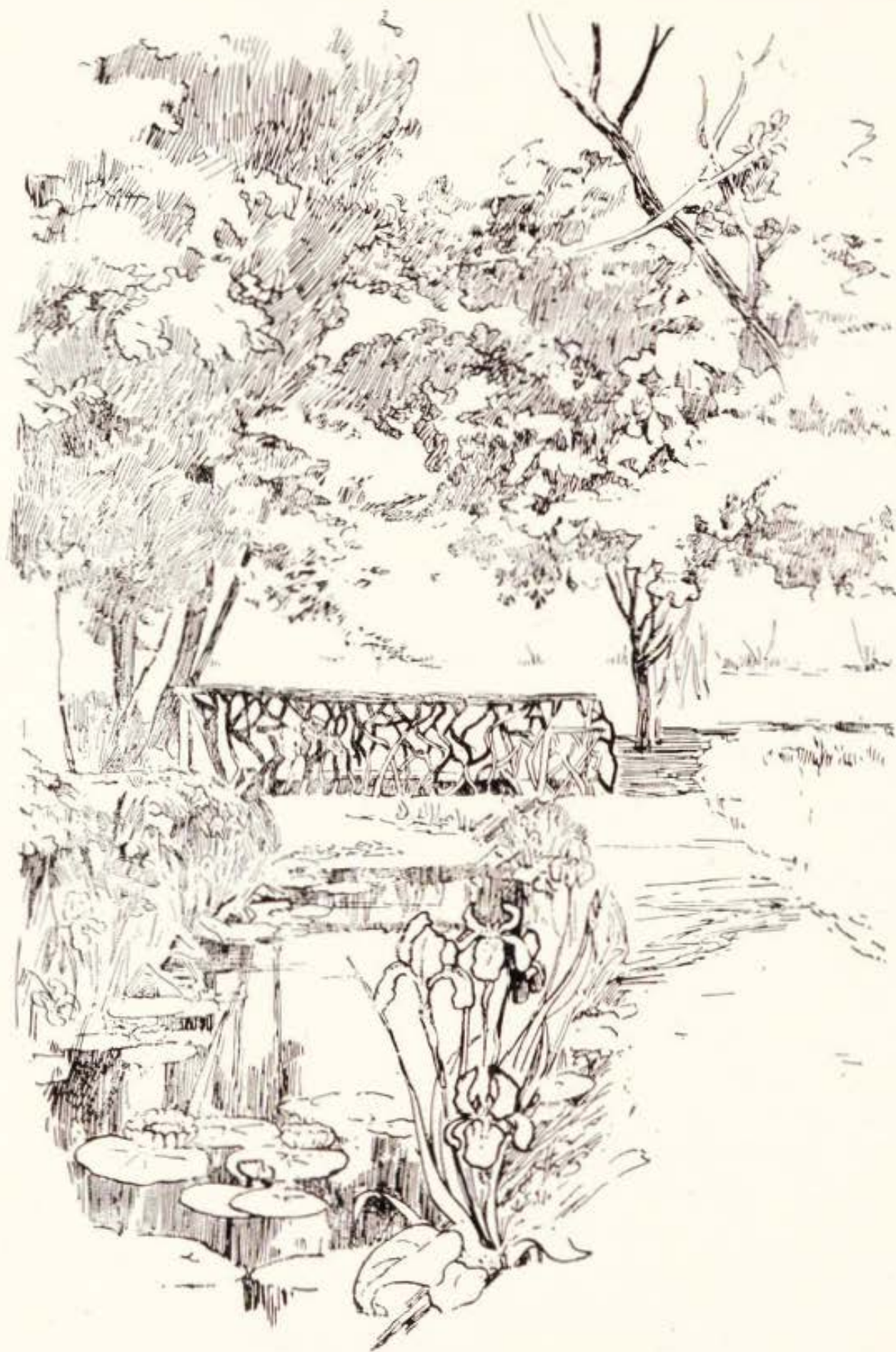


basis. It is my strong desire that every employee will become a member of the club and institute. We shall have an administrative committee, but also every member of the club should regard himself or herself as a member of a grand committee with duties to perform. It is essential to the success of this club that the members should all strive to bury every selfish desire in order to promote the happiness of their associates. We had some beautiful texts this morning during the inaugural service at the church. I want to recall one—'Bear ye one another's burdens.' We know that those who seek their own selfish gratification in this world are the least happy, and those who try to bear each other's burdens and to assist each other, get the greatest happiness to be found in this life. Following such a course requires self-sacrifice, and I hope everyone will keep this text in view, and that it will be the first and constant thought and endeavour of members of this club and institute to make others happy.

"I cannot sufficiently express to the members of the Management at London and Dartford, who have presented me with a golden key with which to unlock the gates of this club and institute, how deeply touched I am by this expression of their kindness. I am always receiving kind consideration and support from these, my valued associates. I shall always treasure this jewel. Those beautiful giant storks, in antique bronze, which grace the fountain immediately within the entrance to the grounds, were presented to us by Mr. Lloyd Williams, of the Works Management. We all deeply appreciate his generous gift of these superb works of art. Let us drink heartily the toast 'The Employees, and Success to the Wellcome Club and Institute,' and I associate with the toast the name of Mr. R. Clay Sudlow, our esteemed General Manager, the oldest member of our staff, and my invaluable right-hand support in the direction of this great business."

MR. R. CLAY SUDLOW replied: "Before I refer to the toast that has been so very kindly proposed from the chair,





THE GARDEN CREEK

Is a tributary of the Darent, dividing the orchard from the kitchen garden

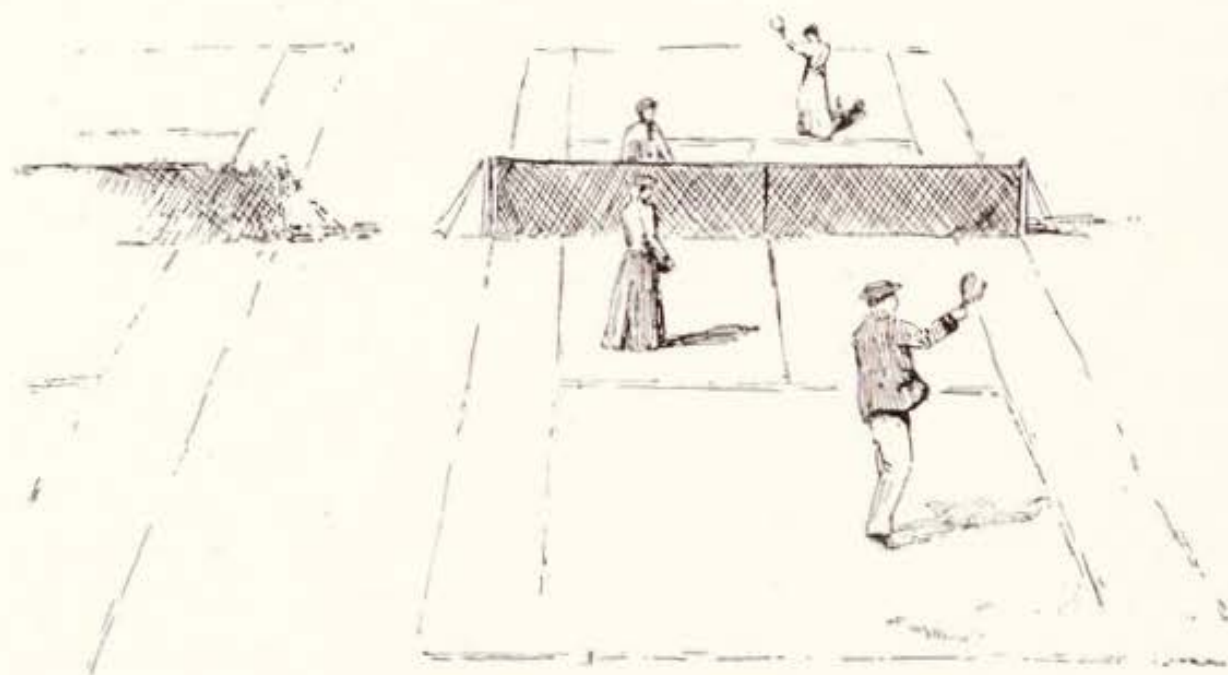


I believe I shall be expressing the feelings not only of the employees, whom I am very proud to represent, but also of the visitors who have honoured us with their presence, when I say how glad we are to have Mr. Wellcome with us to-day in renewed health. He is the hardest worked and the hardest working member of our large community, and it is a matter for very sincere rejoicing that, after another twelve months of incessant thought and labour in the conduct of this huge and ever-increasing business, he is able to preside over us on this unique occasion, this red letter-day in the annals of the firm, with his accustomed force and vigour.

"I cannot but think that the knowledge gained by us here this morning as regards the extent of the provision made for our comfort and happiness, of the advantages and privileges secured to us by this club and institute is a perfect revelation. The idea of this club, as we all know, originated with Mr. Wellcome. It is absolutely his creation, and we owe him a very deep and a lasting debt of gratitude for the initiation of the scheme, and for the immense amount of thought and study that he has so ungrudgingly given, in order to make this club perfect and complete in every detail.

"If I mistake not, our visitors have already come to the conclusion that to be an employee of the firm of Burroughs Wellcome & Co. is to occupy a very happy and a very privileged position. As the oldest member of that body—next year I shall attain my majority in Mr. Wellcome's service—I am glad to assure our visitors that their conclusion is an absolutely just one. Mr. Wellcome has proved himself a master whom it is at once a pride, a pleasure, and an honour to serve, and there are many of us here present to-day who, having given him our best, feel that we fall very short of the service that we would desire to render him.

"Mr. Wellcome, you have told us that you do not want, and that you do not look for thanks, but I do hope that you will



THE SPORTS FIELD  
The first of the playing fields



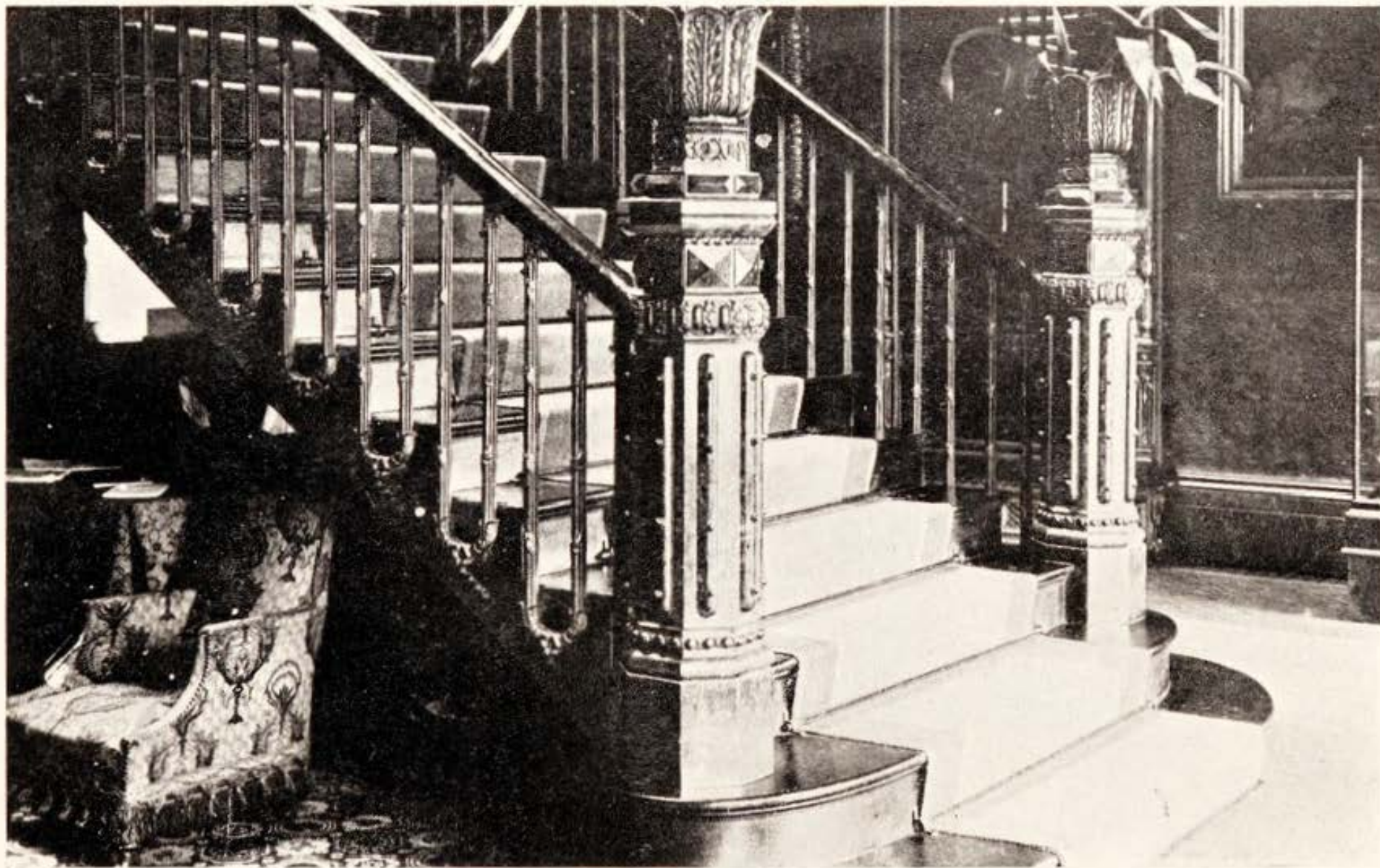
allow us to express our very deep appreciation of your generous kindness in placing this club at our disposal, of the personal feeling you have thrown into the undertaking by loaning to the club many of those treasures that you have been at such pains during many years to collect, and of your friendly goodwill in allowing us, in accordance with our unanimous wish, to call this club by your own name. We sincerely hope that you will be spared for many years to witness, and to rejoice in, the complete fulfilment of the high ideal that you have formed with regard to your employees, and may that realisation be brought about in a great measure by means of the Wellcome Club and Institute, so happily and so successfully inaugurated to-day."

TOAST: "THE FIRM."

PROFESSOR JOHN ATTFIELD, F.R.S., said: "I have the great honour of asking you to drink to the continued prosperity of the firm of Messrs. Burroughs Wellcome & Co. I have known the members from the foundation of this great firm—the firm which began in so small a way, and which has developed to such enormous proportions. I assume that everyone present is interested in the leading work of this firm, which is the association of scientific and commercial pharmacy.

"The firm is distinguished in many ways. It is distinguished for its progressive spirit. I look at the various journals of pharmacy and medicine that are published in our Colonies and India, as well as those published in the United Kingdom, and I never take up one but I find the mention, and sometimes a very long mention too, of this great and powerful and successful firm. A second great characteristic of the firm is the entire reliability of all the articles it sends out. I am sure no one could have followed its development without noticing the wonderful originality that has always characterised it; and I may add that





STAIRCASE  
Staff Club House



all this is chiefly due to the present head of the firm, Mr. Wellcome, and his wonderful skill in organisation in every department.

“ Talking of organisation, we who are here to-day as visitors, must, I am sure, have been charmed by the evidence of organisation which we have seen from the time we left Charing Cross till the present moment. The great comfort of the arrangements of that special train that was provided for us; and, when we had arrived at Dartford station, the very interesting fire alarm drill, with its wonderful evidence of promptitude and precision; the extremely beautiful and, I may add, poetic inauguration service at the church, and the interesting, though it has been termed formal, opening of the Club and Institute, by Mr. Wellcome. I was very proud indeed, seeing that I have known the principals of the firm for so many years, and have watched their progress, to be the first one welcomed on this occasion by Mr. Wellcome when he opened the gates with that beautiful golden key, which has been presented to him by his managers.

“ I feel sure you will respond to this toast for, perhaps, a deeper reason than I have offered you up to the present time, and this is the spirit which characterises this firm from beginning to end, and which I take to be, first, the promotion of scientific and commercial research, and secondly, the promotion of good-fellowship amongst all the employees. Now, here I venture to speak, as Mr. Wellcome said, from the heart to the heart, because of my extreme interest in all that relates to research in pharmacy and the promotion of friendly intercourse amongst those who follow that calling. It is now 36 years since a few of us assembled in a very small room at Newcastle, and ventured to start an association (The British Pharmaceutical Conference) having objects which I find here to-day reflected in one of the greatest firms of the world—that is, the promotion of research in connection with pharmacy, and the promotion of





SITTING ROOM  
Staff Club House



good fellowship amongst the followers of that calling. I allude to it as I want to remind you once more that the objects of that society, which we ventured to set forth as objects that could be followed by the principals and by the employees of every pharmacy in this country, are the principles which are so successfully prosecuted by the firm of Burroughs Wellcome & Co.

"I cannot but rejoice and congratulate Mr. Wellcome on the fact that, in addition to his organisation of scientific and commercial research coupled with good fellowship, as indicated by this club, enormous financial success, which has been abundantly deserved, has been realised.

"I must allude, before I sit down, to one other great pleasure that has forced itself upon me, though I must not say much about it, because a compliment to myself is in it, and that is that in every department of this great firm I find myself here to-day welcomed by my old pupils. Their merits have been realised by this firm, and I can assure them, though I am perfectly certain they need no such assurance, that the men they have obtained from the Bloomsbury Square Laboratories and Lecture Rooms were some of our brightest ornaments during the whole time I was connected with that Institution, viz., from 1863 to 1896. I come here and I find Mr. Lloyd Williams, Dr. Jowett, Mr. Carr, and many others—but really they are too numerous to mention—all old students who distinguished themselves at Bloomsbury Square, now occupying prominent and responsible positions in this firm.

"On all these grounds, and you will see I have given you a wealth of reasons, I heartily offer the toast to Messrs. Burroughs Wellcome & Co., and I will associate with the toast the name of the chief ornament of the firm, Mr. Henry S. Wellcome."

Mr. WELLCOME replied: "No one could fail to be deeply gratified by the honour Professor Attfield has done to our firm





MUSIC ROOM  
Staff Club House



and to me. I, as a youth, took my first lessons in chemistry from Professor Attfield's text-book. This great master led my first steps in gaining a knowledge of chemistry, and I feel it a peculiar honour that he should have paid such a tribute to the results of the efforts to which I have devoted my life. I am obliged to acknowledge that there are material grounds for Professor Attfield's tribute to the successful work of the firm. Our strides have not been spasmodic, they have been steady. Each succeeding year has shown a substantial advance of about one hundred additional employees.

"Professor Attfield touched upon one feature of our work which is especially dear to me, that is my two Scientific Research Laboratories. We are sometimes asked to say more about what is being done there. Our products constantly indicate to the profession important results. But you are not likely to learn the details of all our doings in the outside world. There is much extremely important work going on in these research laboratories of the highest scientific and practical importance—work that is satisfactory to us as marking progress, and which promises us still greater advancement. The greatest work is sometimes done silently."

#### TOAST: "THE PRESS AND VISITORS."

THE CHAIRMAN said: "We are honoured by the presence of distinguished visitors from the four quarters of the globe, and some of these are old and intimate personal friends of mine, who have strengthened me in my work by their counsel and their friendship. There are those of the Press here who have not failed when we have done anything that merited it to chronicle it, and this has been greatly to our advantage. We have only asked to be treated on our merits, and we have been treated justly by the Press. I will ask you to drink very heartily to the toast of The Press and the Visitors, connecting with the toast the name of Dr. Creasy, of the *British Medical Journal*."





INTERIOR OF GYMNASIUM AND ASSEMBLY ROOM



DR. CREASY replied : " It is a very great privilege to be the guest of a firm like this. It is a privilege, moreover, because this firm is one that has gained, and gained rightly, the highest repute in the world for good scientific work of every description. What the Press says is only what is due to the splendid work that is done by the firm."

### ENTERTAINMENTS

Shortly after luncheon an adjournment was made to the sports field for a pretty floral maypole dance by a group of lady employees. This was followed by athletic sports, most of the events of which were very keenly contested and watched with intense interest. Tea was then served in the great marquee.

In the evening there were well-contested aquatic sports, a graceful and artistic musical bicycle ride by lady employees, the cycles being elaborately decorated with flowers. The presentation of the prizes followed, and the day's entertainment culminated in a magnificent display of fireworks and an illumination of the grounds. The twinkling of hundreds of fairy lights effectively arranged throughout the grounds, the glow of Chinese lanterns everywhere among the trees, and the flood of coloured light from the fireworks, combined to form an entrancing spectacle, which was further enhanced by the quivering reflections in the river and lake. It formed a delightful setting to the final events of a day which was as enjoyable as it was unique in the history of chemical industry.

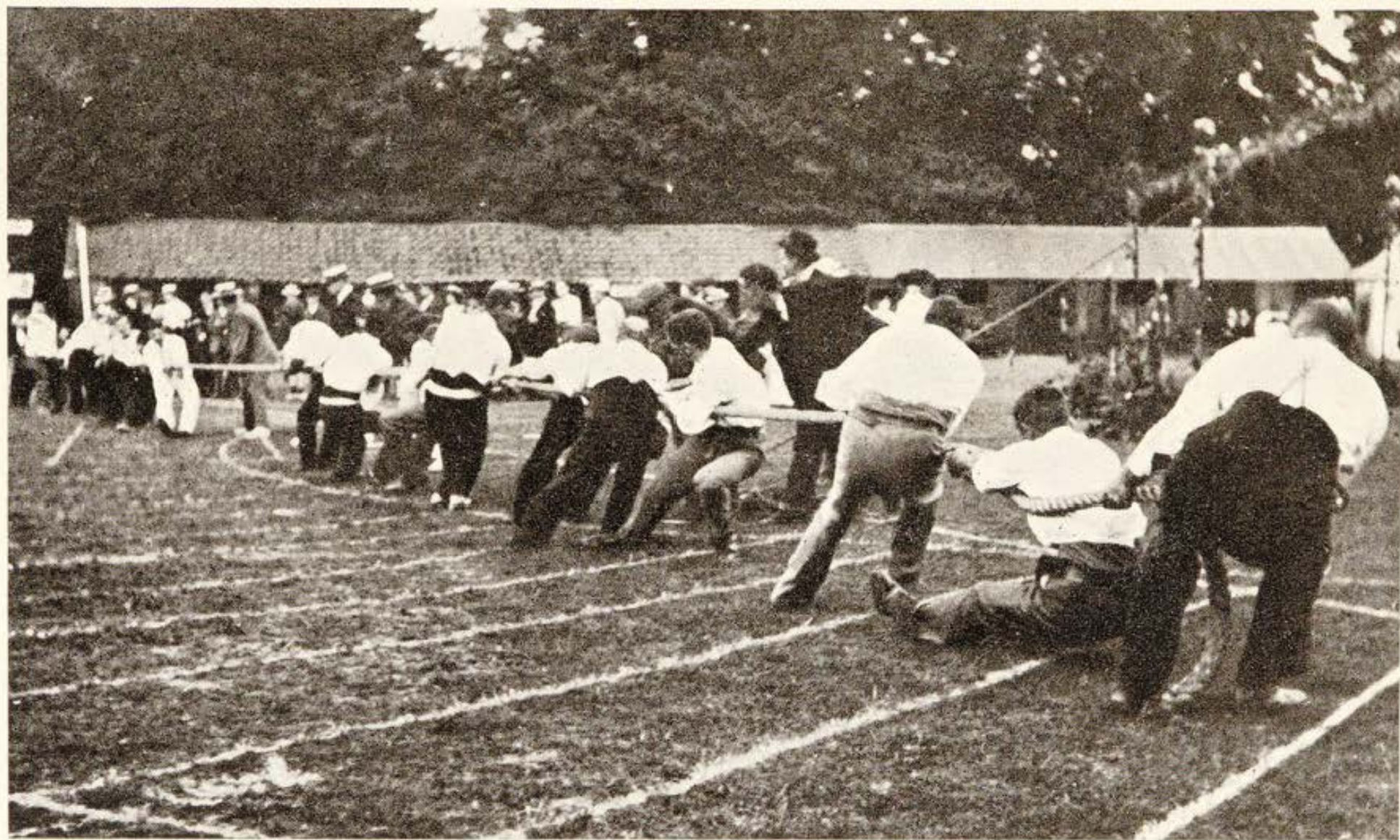
The absolute precision with which every item in the programme, from early morning until nearly midnight, was carried out, was evidence of a most complete and painstaking organisation, and was commented upon by scientific visitors as typical of the firm's remarkable scientific exactness in other directions.





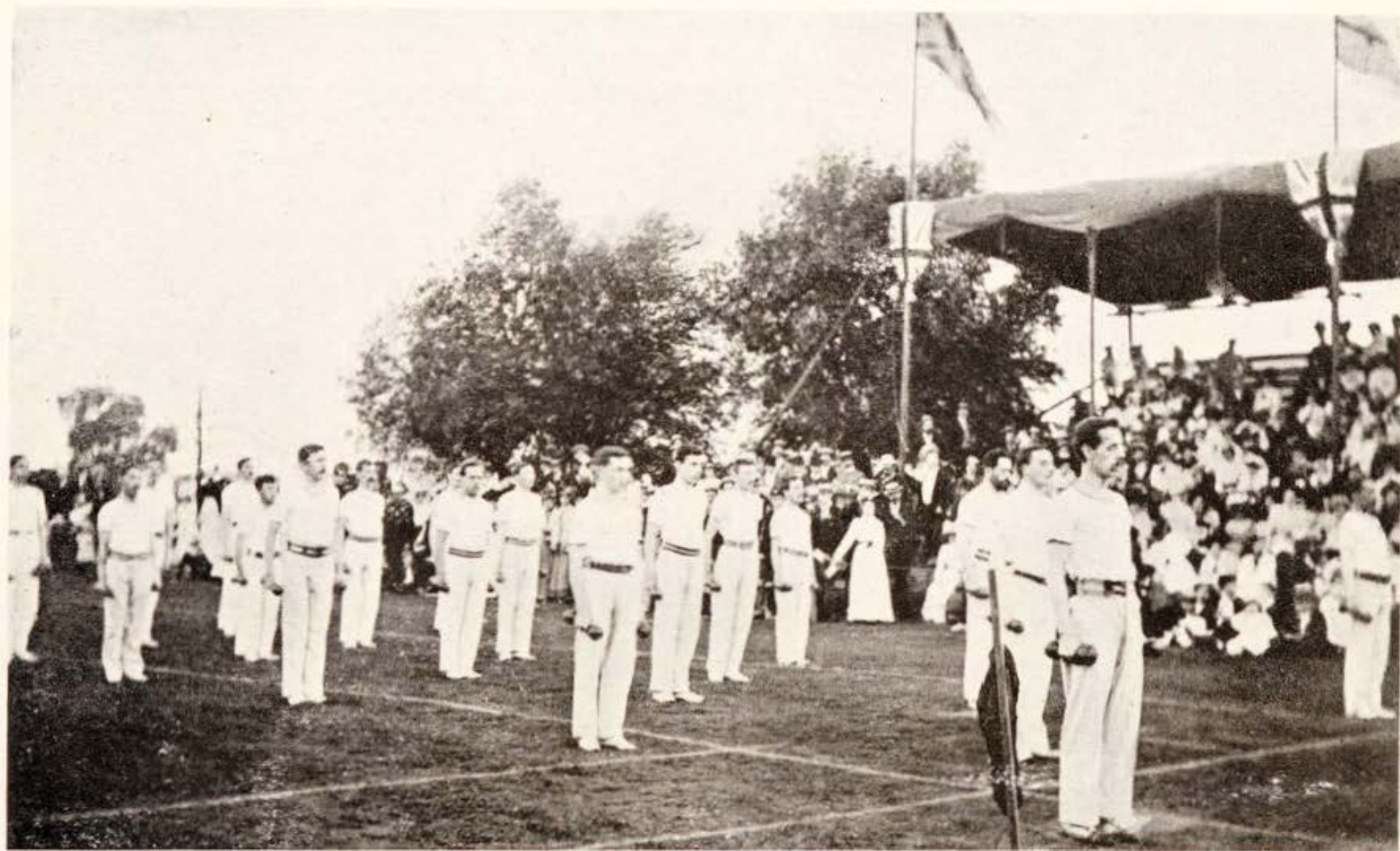
MAYPOLE DANCE BY LADY EMPLOYEES  
Wellcome Club and Institute





TUG OF WAR  
Inter-departmental—Wellcome Club and Institute





DUMB-BELL EXERCISES  
By Members of the Gymnastic Club—Wellcome Club and Institute

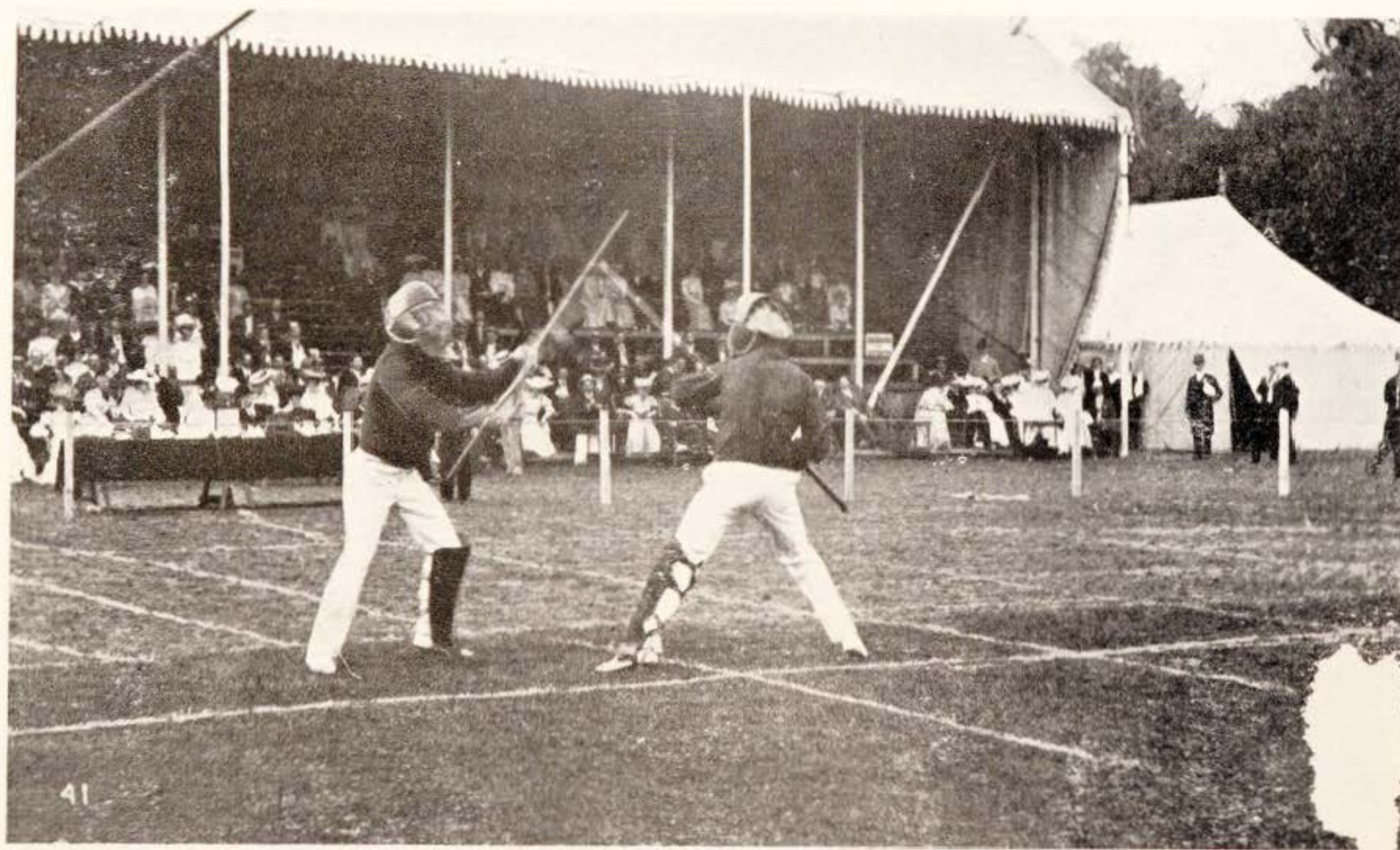




Gymnastic Exercises

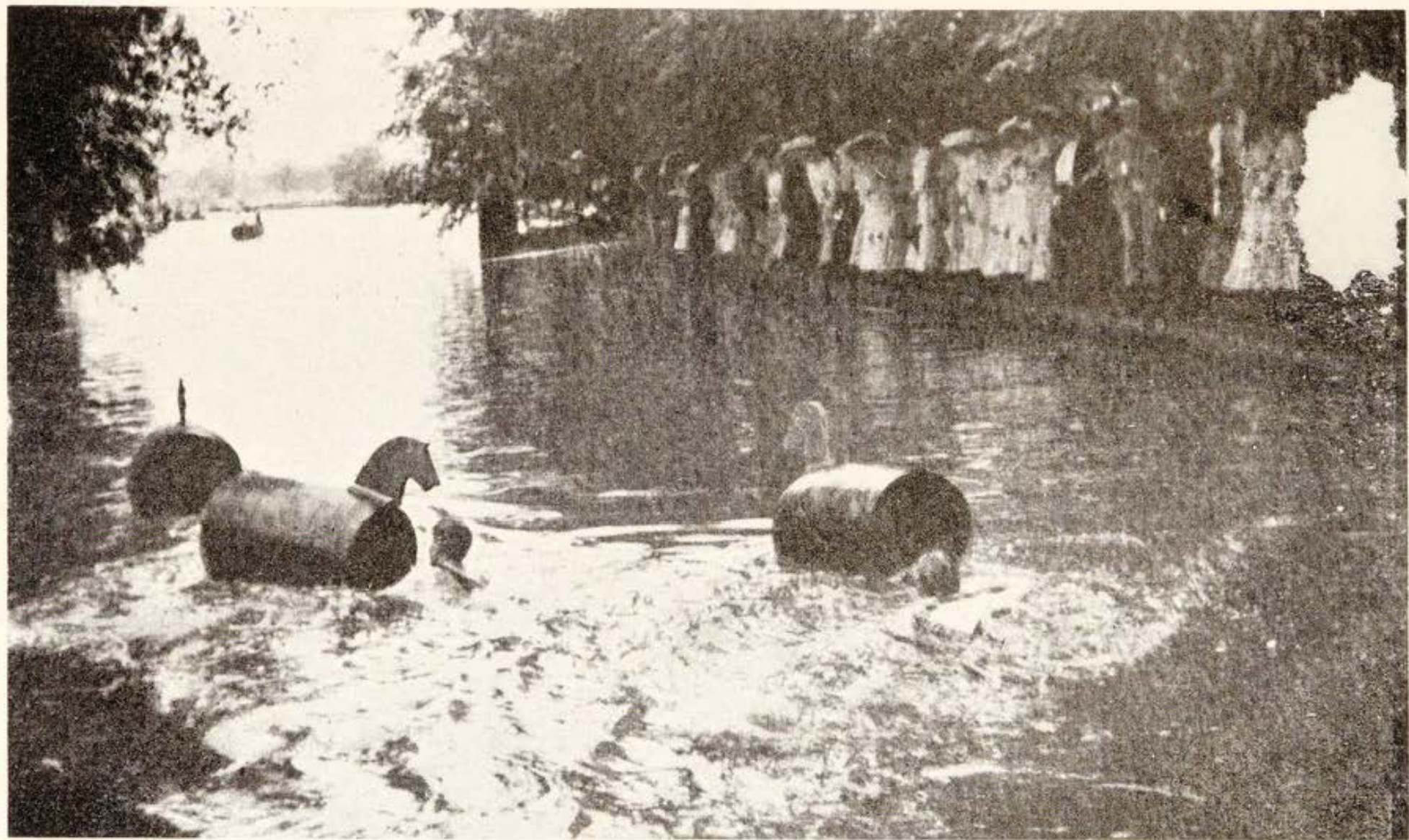
By Members of the Gymnastic Club—Wellcome Club and Institute





QUARTER-STAFF DISPLAY  
By Members of the Gymnastic Club—Wellcome Club and Institute





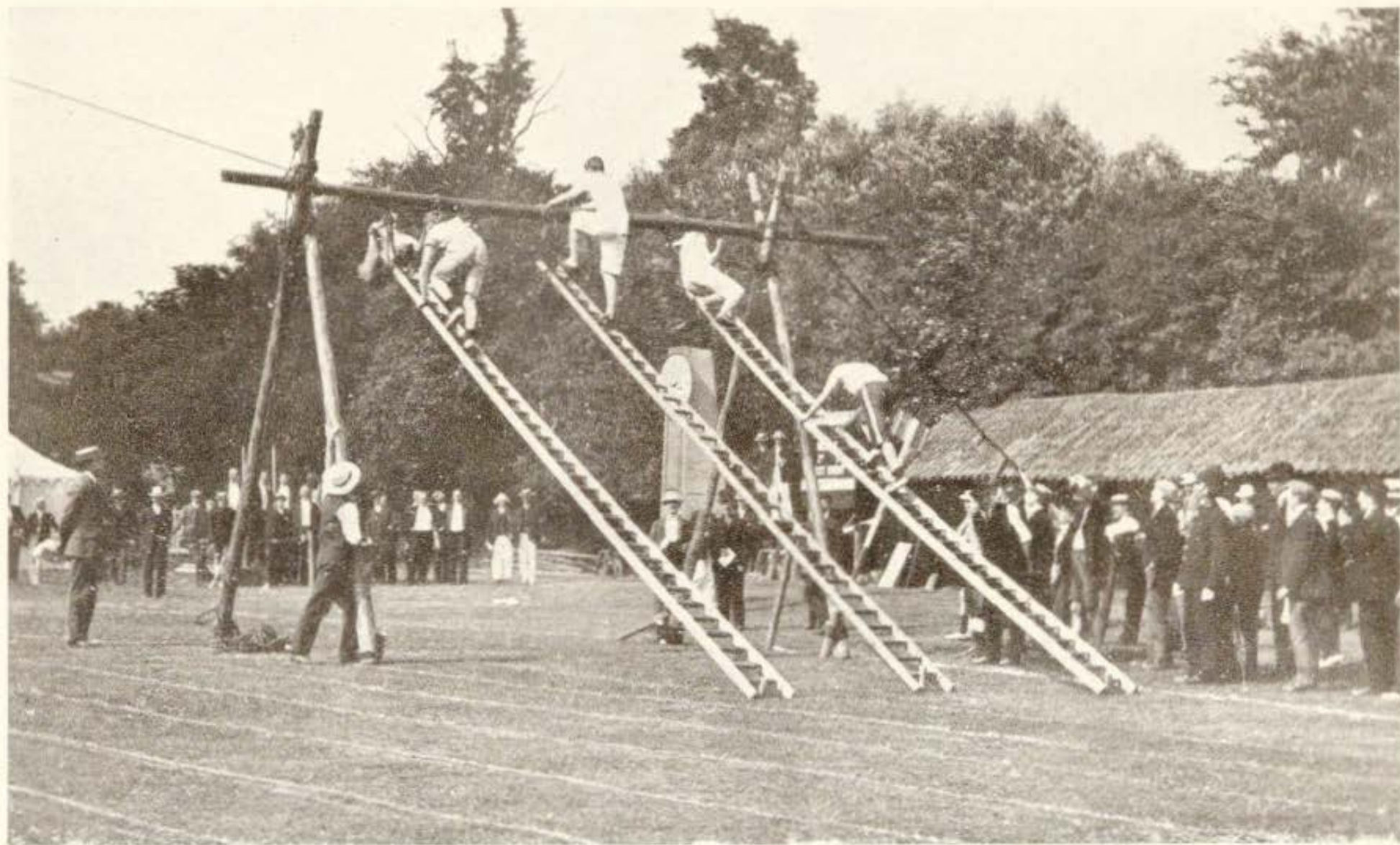
AQUATIC SPORTS

By Members of the Swimming Club—Wellcome Club and Institute





QUARTER-MILE HANDICAP RACE  
By Members of the Athletic Club—Wellcome Club and Institute



### OBSTACLE RACE

By Members of the Athletic Club - Wellcome Club and Institute





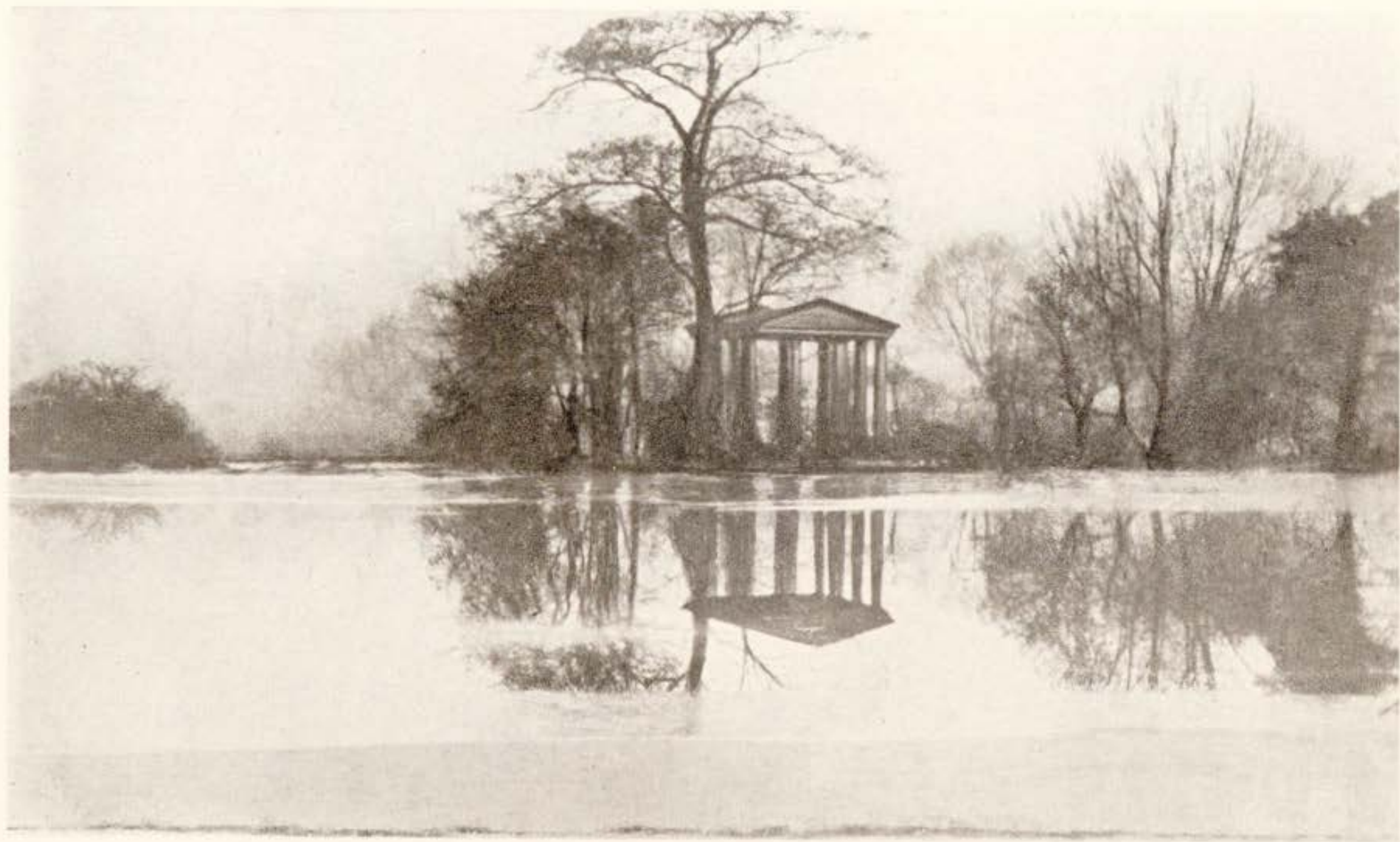
# HOCKEY MATCH

By Members of the Hockey Club—Wellcome Club and Institute

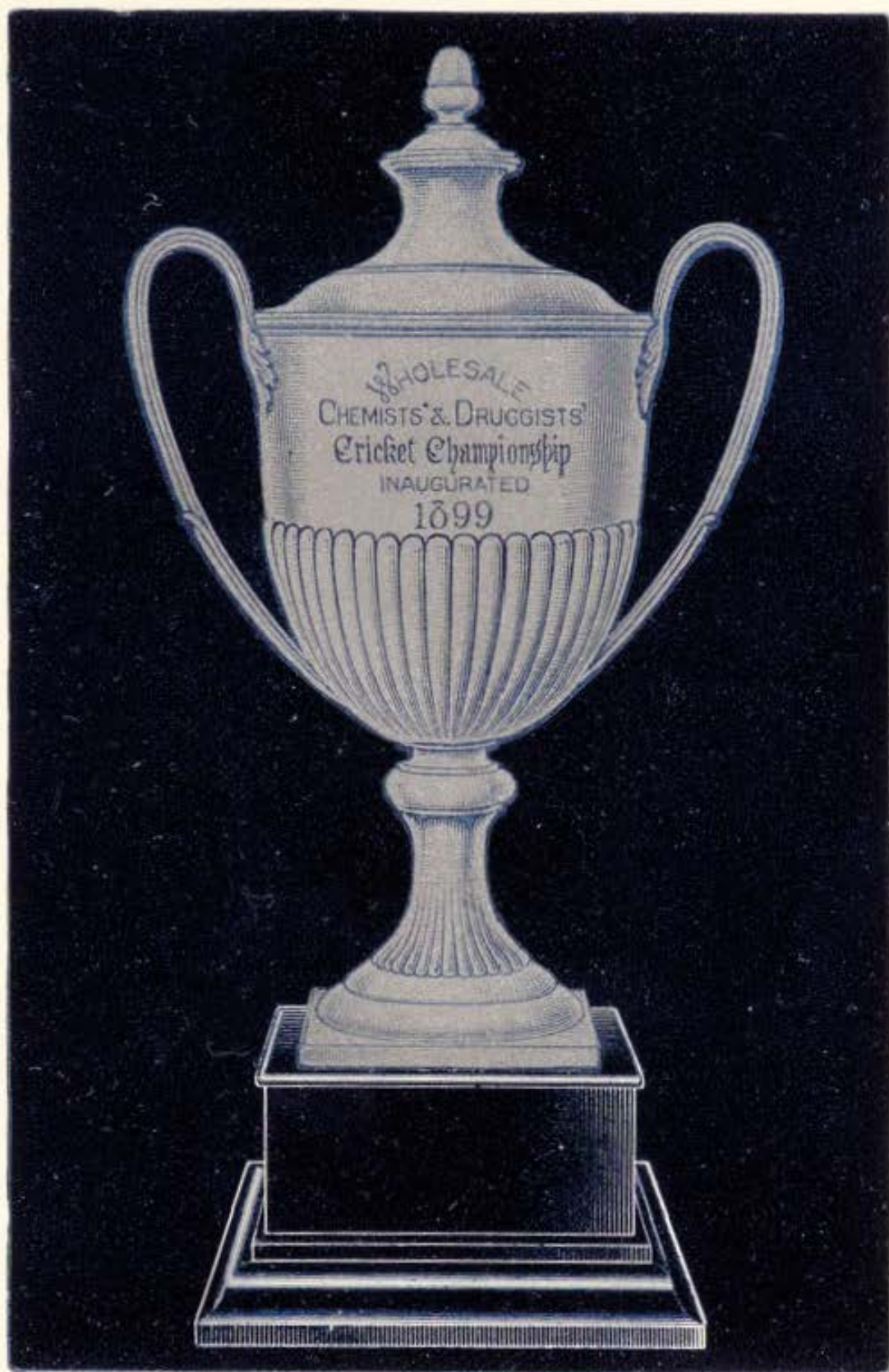


BOATING ON THE LAKE  
Wellcome Club and Institute





WINTER SCENE  
In the Grounds of the Wellcome Club and Institute



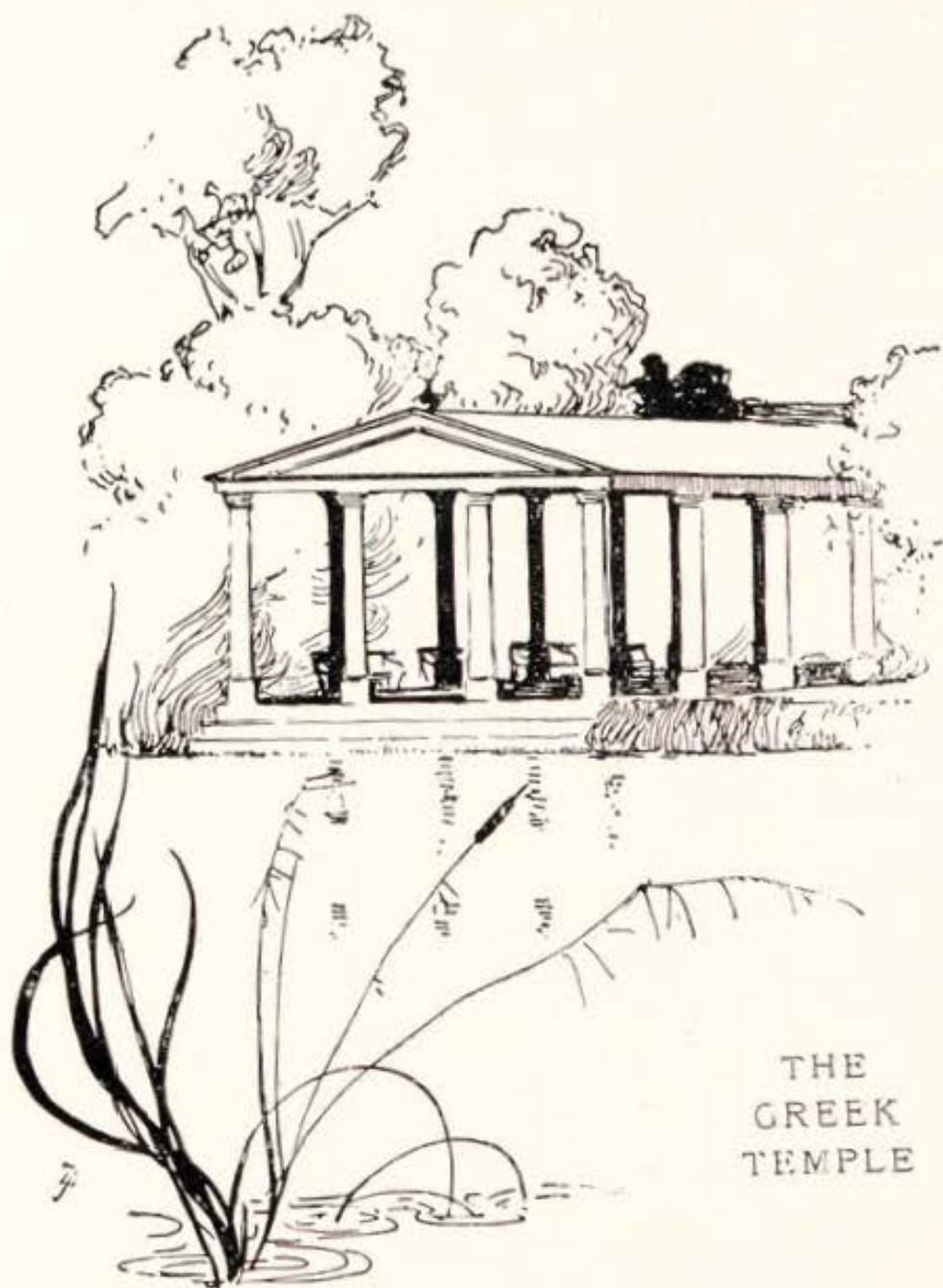
WHOLESALE CHEMISTS' AND DRUGGISTS' CRICKET  
CHAMPIONSHIP, LONDON

Won by the WELLCOME CRICKET CLUB five years in succession.  
During these five years the Club's record in the championship  
matches was—

Won 31	Drawn 1	Lost 3
--------	---------	--------

At the end of the five years the Club withdrew from competition





WELLCOME CLUB AND INSTITUTE

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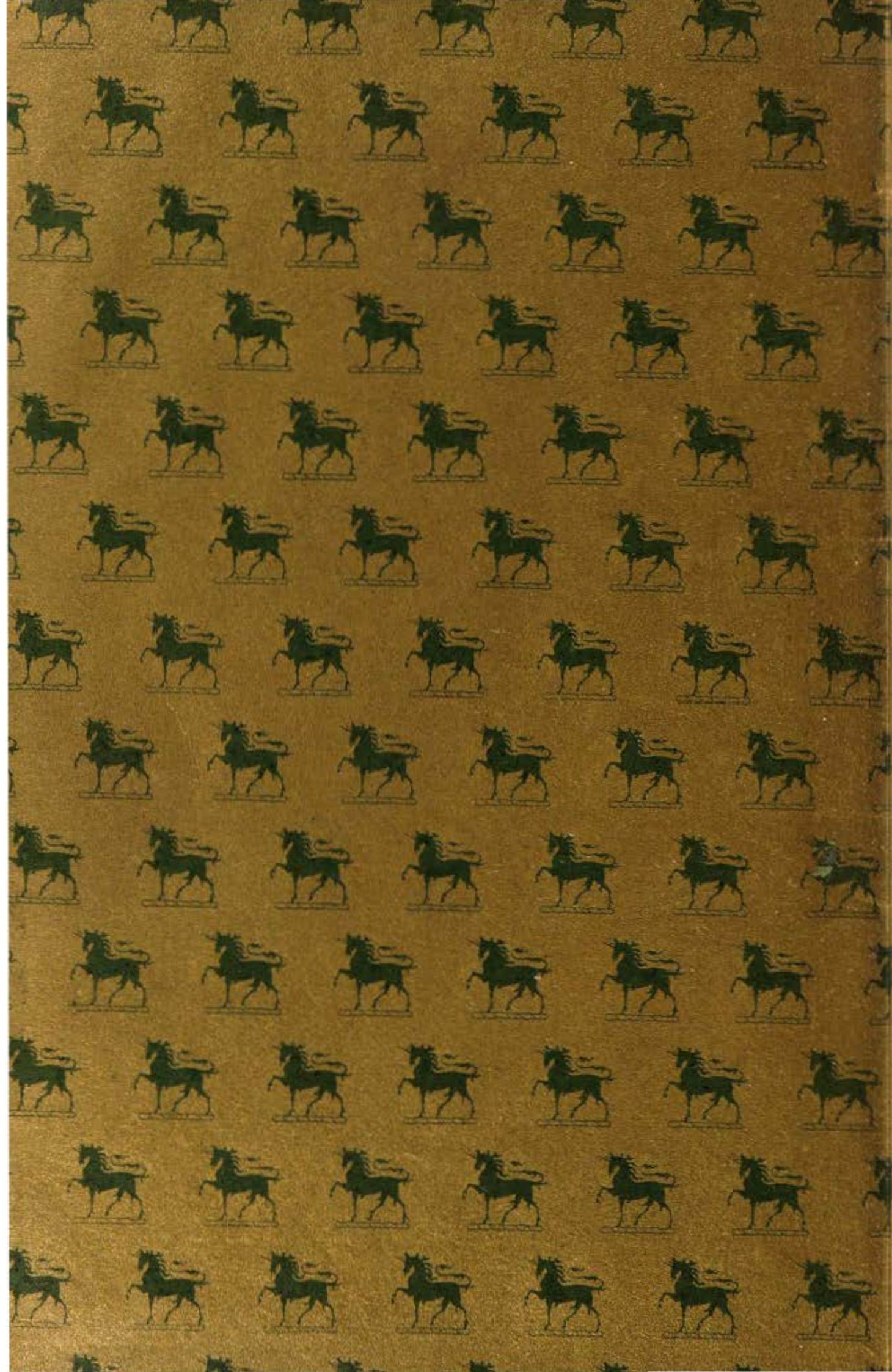


















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