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LONDON, ENGLAND

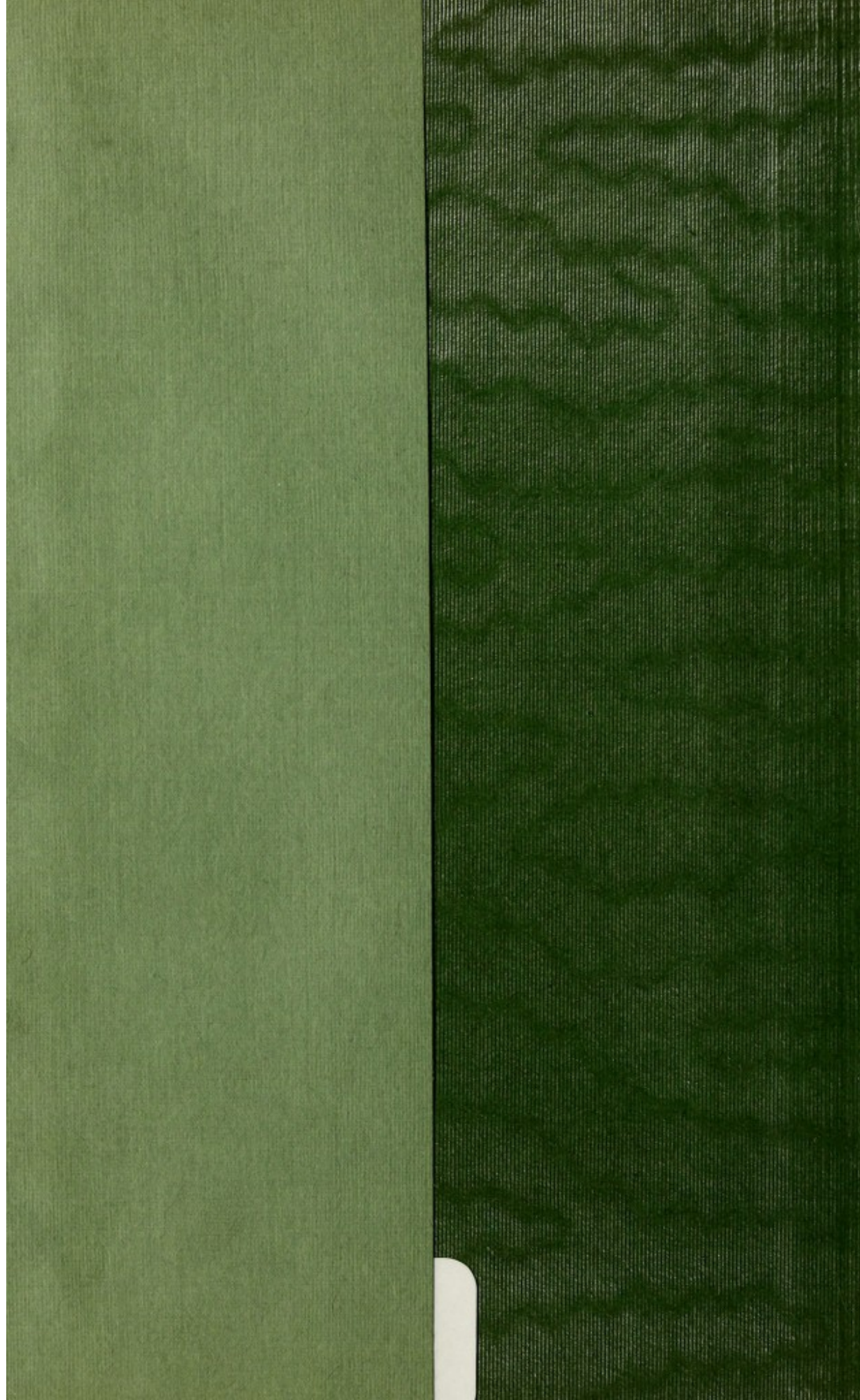


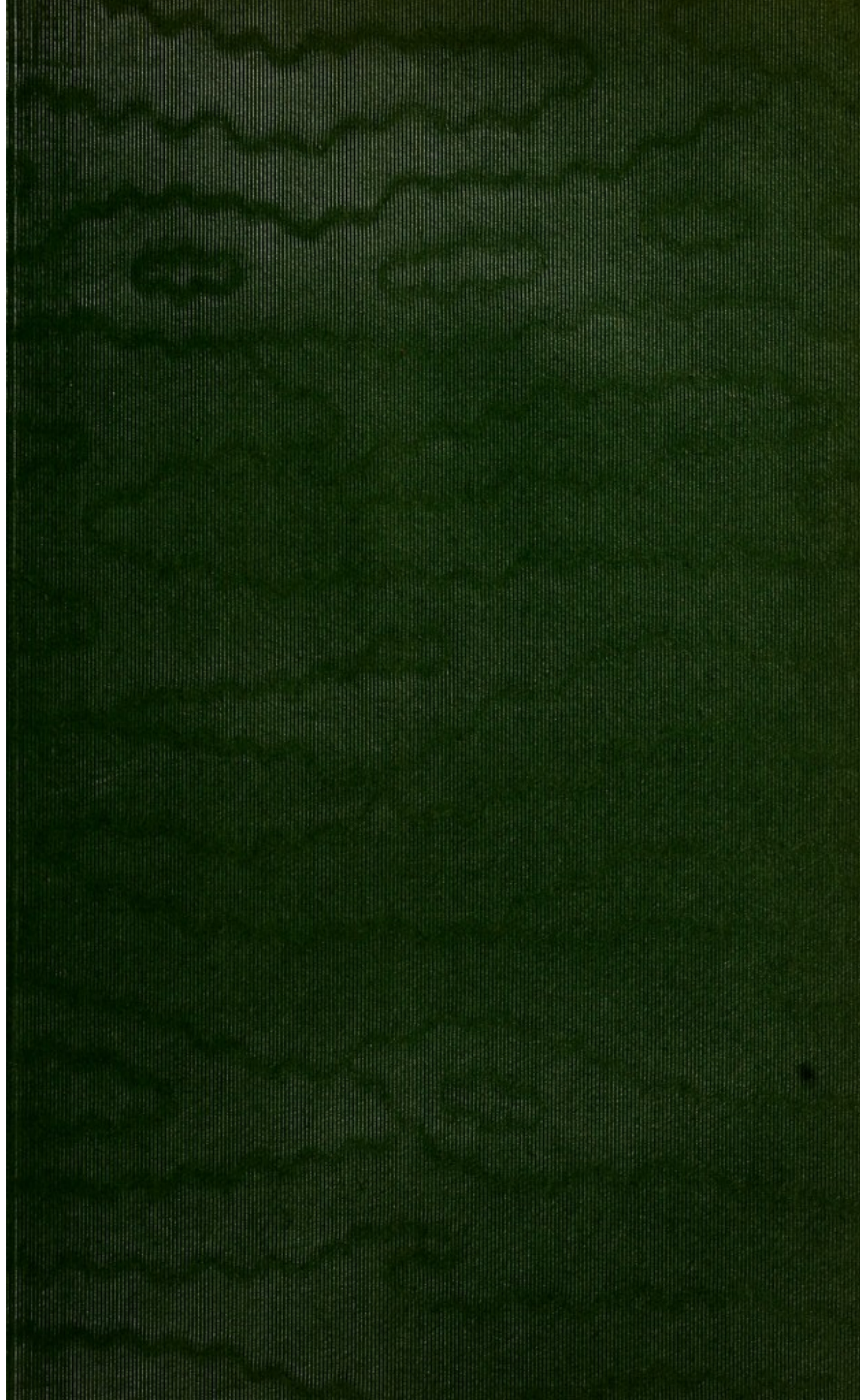
EXHIBITS AT THE
CHICAGO EXPOSITION

1933

WELLCOME COLL

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"THE ASSOCIATION OF
MUSEUMS WITH RESEARCH
INSTITUTIONS IS AN IM-
PORTANT FEATURE OF
MODERN SCIENTIFIC
WORK."

PUBLISHERS' ANNOUNCEMENTS

PUBLICATIONS OF THE WELLCOME
BUREAU OF SCIENTIFIC RESEARCH

BARRIER CHARTS FOR HEALTH OFFICERS

(Second Edition).—A synopsis of Preventive Measures against Communicable Disease, in Four Tables. By S. H. DAUKES, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H. Each Chart is printed on a separate four-fold card in red and black inks, the whole being enclosed in a strong case. The Charts deal with four groups of diseases—ALIMENTARY, RESPIRATORY, INOCULATION, CONTACT—and each Chart gives tabulated information regarding: Habitat of Infective Agent, Incubation, Infective and Quarantine Periods, and the Barriers which can be set up against each disease, etc. Published by Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, London, W.C.2 (Eng.). Price in London, 3s. 6d. net.

WAR AGAINST TROPICAL DISEASE (Second

Edition).—Being Seven Sanitary Sermons addressed to all interested in Tropical Hygiene and Administration. By Sir ANDREW BALFOUR, K.C.M.G., C.B. In seven profusely-illustrated chapters, this volume places the extensive experience of the Author at the disposal of all interested in hygienic methods for combating Tropical Diseases. Contains 220 pages with 180 illustrations in colour, half-tone and line and 8 pages of index. Frontispiece and maps in colours. Crown Quarto size, Cloth Binding. Published by Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, London, W.C.2 (Eng.). Price in London, 12s. 6d. net.

HUMAN INTESTINAL PROTOZOA IN THE NEAR EAST.—By C. M. WENYON, C.M.G., C.B.E., M.B., B.S., B.Sc., F.R.S., and F. W. O'CONNOR, M.R.C.S., L.R.C.P., D.T.M. An enquiry into some problems affecting the spread and incidence of intestinal protozoal infections of British Troops and Natives in the Near East. Contains 218 pages, including 8 pages of index; 4 pages of plates, with complete descriptions of each; and other illustrations. Crown Quarto size. Cloth Binding. Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W.1 (Eng.). Price in London, 10s. 6d. net.

MOSQUITO SURVEYS.—A Handbook for Anti-Malarial and Anti-Mosquito Field Workers. By MALCOLM E. MACGREGOR, M.A., D.Sc., Entomologist, The Wellcome Field Laboratory, The Wellcome Bureau of Scientific Research. With Foreword by Sir RONALD ROSS, K.C.B., K.C.M.G., F.R.S. Medical Officers of Health and all engaged in anti-malarial and anti-mosquito campaigns will find this work indispensable in the hitherto difficult task of identification and classification of species. Contains 282 pages, liberally illustrated, 62 maps, diagrams and photographs. Crown Octavo size. Cloth Binding. Published by Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, London, W.C.2 (Eng.). Price in London, 15s. net.

PUBLICATIONS OF THE WELLCOME HISTORICAL MEDICAL MUSEUM

DE ARTE PHISICALI ET DE CIRURGIA of Master John Arderne, Surgeon of Newark, dated 1412. Translated by Sir D'ARCY POWER, K.B.E., from a transcript made by ERIC MILLAR, M.A. Contains 60 pages, 14 plates in colour and monochrome. Crown

Quarto size. Cloth Binding. Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W.1 (Eng.). Price in London, 10s. 6d. net.

MAGISTRI SALERNITANI NONDUM COGNITI.—A Contribution to the History of the Medical School of Salerno by Doctor PIETRO CAPPARONI, General Secretary, of the "Istituto Storico Italiano dell'Arte Sanitaria," Counsellor of the Società Italiani di Storia delle Scienze mediche e naturali. With a Foreword by Sir D'ARCY POWER, K.B.E. Contains 68 pages, 28 plates in colour and monochrome. Crown Quarto size. Cloth Binding. Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W.1 (Eng.). Price in London, 15s. net.

THE ICONOGRAPHY OF ANDREAS VESALIUS.—(André Vésale), Anatomist and Physician. 1514–1564. Paintings—pictures—engravings—illustrations—sculpture—medals. With notes, critical, literary and bibliographical, by M. H. SPIELMANN, F.S.A. Contains 244 pages, 68 plates in addition to text illustrations. Crown Quarto size. Cloth Binding. Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W.1 (Eng.). Price in London, 30s. net.

HISTORY OF SCOTTISH MEDICINE (Second Edition).—By JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P. This book provides for the first time a full, authentic and authoritative history of Scottish Medicine from primeval to modern times. It will be found entertaining to read as well as a reliable source of information to students of medicine and to antiquarians. In two Volumes. Crown Quarto size. Cloth Binding. Contains 856 pages, 405 illustrations, including Frontispiece in colour. Published by Baillière, Tindall & Cox, 7 & 8, Henrietta Street, Covent Garden, London, W.C.2 (Eng.). Price in London (2 Vols.), 50s. net.

PUBLICATIONS OF THE WELLCOME
TROPICAL RESEARCH LABORATORIES
GORDON MEMORIAL COLLEGE
KHARTOUM. ANGLO-EGYPTIAN SUDAN

Large Quarto Size. Cloth Binding

*Published by BAILLIÈRE, TINDALL & COX
7 & 8, Henrietta Street, Covent Garden, London, W.C. 2 (Eng.)*

FIRST REPORT, 1904.—An account of the first measures in Mosquito Destruction. Contains 87 pages, including 5 coloured plates. Illustrated with 61 photographs, drawings, maps and plans. Price in London, 12s. 6d. net.

SECOND REPORT, 1906.—Contains results of fresh researches on a great number of Tropical Diseases, including Sleeping Sickness, etc. Contains 255 pages, including 16 coloured plates. Illustrated with 133 photographs, drawings, maps and plans. Price in London, 17s. 6d. net.

THIRD REPORT, 1908.—Record of extensive Tropical Research. Chapter on Sanitation and a number of sciences connected with Tropical Medicine. Contains 477 pages, including 28 coloured plates. Reproductions of 333 photographs, drawings, maps and plans. Price in London, 21s. net.

**REVIEW OF RECENT ADVANCES IN
TROPICAL MEDICINE.**—

SUPPLEMENT TO THE THIRD REPORT.—By BALFOUR and ARCHIBALD. Contains 251 pages. Price in London, 10s. 6d. net.

FOURTH REPORT, 1911.—Volume A—MEDICAL.—Record of extensive researches in Tropical Diseases. 404 pages including 14 coloured plates. 160 reproductions of photographs, drawings and maps. Price in London, 21s. net.

Volume B—GENERAL SCIENCE.—Record of extensive research in Economic Branches. Contains 334 pages including 9 coloured plates. 180 reproductions of photographs, drawings and maps. Price in London, 18s. net.

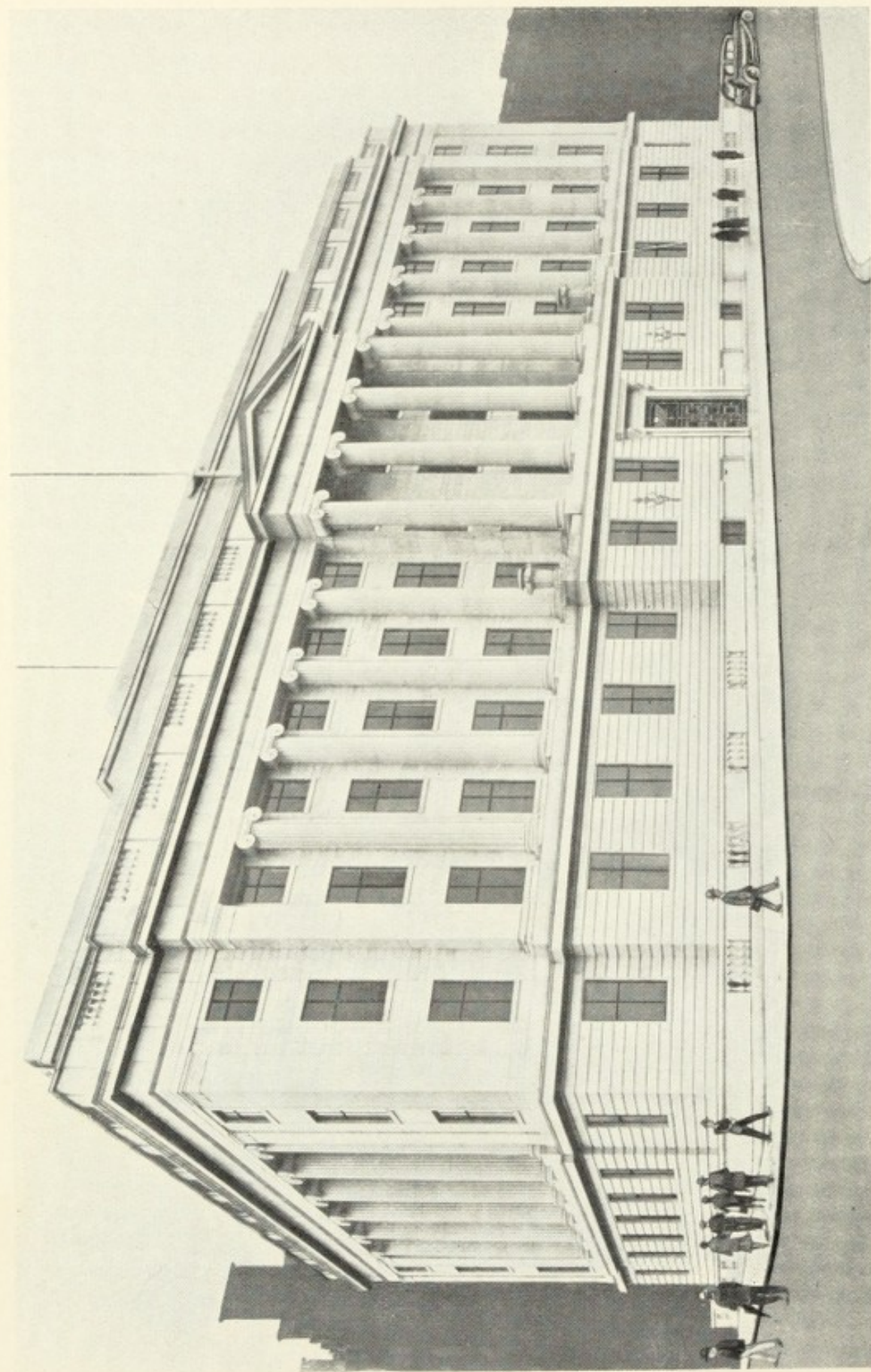
**SECOND REVIEW OF RECENT ADVANCES
IN TROPICAL MEDICINE.**—

SUPPLEMENT TO FOURTH REPORT, 1911.—By BALFOUR and ARCHIBALD. Contains 440 pages. Price in London, 15s. net.

"SANS LABORATOIRES LES
SAVANTS SONT DES SOLDATS
SANS ARMES."

—*PASTEUR.*

"Men of science without laboratories
are as soldiers without arms."



THE WELLCOME RESEARCH INSTITUTION, 183-193, EUSTON ROAD, N.W.1, LONDON (ENG.)
THIS BUILDING MEASURES 225 X 135 FEET

THE WELLCOME
RESEARCH INSTITUTION
AND THE AFFILIATED
RESEARCH LABORATORIES
AND
MUSEUMS

FOUNDED BY
SIR HENRY WELLCOME
LL.D., F.R.S.

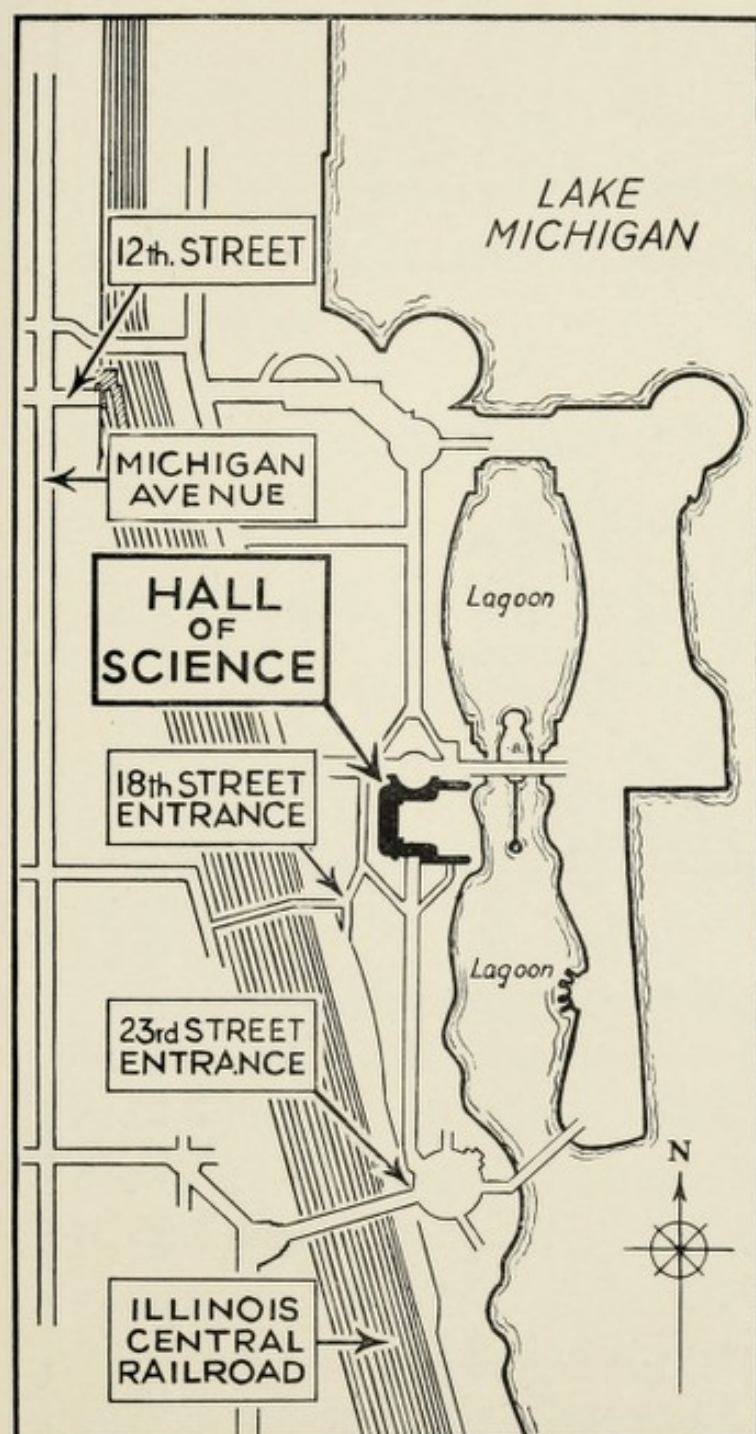


THE WELLCOME FOUNDATION LTD.
LONDON, ENGLAND
1933

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**WELLCOME
COLLECTION**

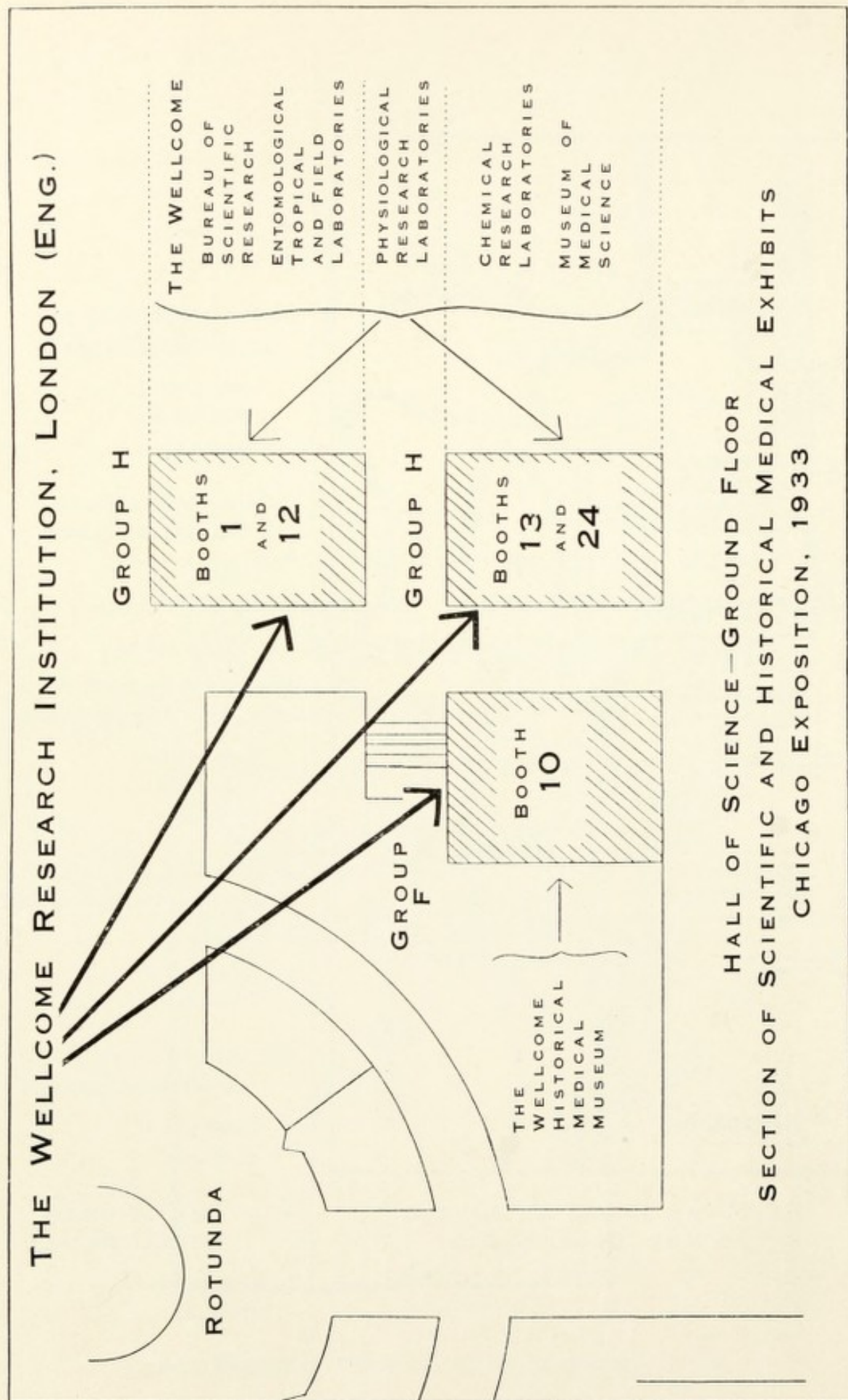
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KEY PLAN to part of CHICAGO EXPOSITION showing situation of HALL OF SCIENCE in which Exhibits of THE WELLCOME RESEARCH INSTITUTION are located

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HALL OF SCIENCE—GROUND FLOOR
SECTION OF SCIENTIFIC AND HISTORICAL MEDICAL EXHIBITS
CHICAGO EXPOSITION, 1933

THE WELLCOME RESEARCH INSTITUTION

THE WELLCOME RESEARCH INSTITUTION
embraces the following affiliated Research Laboratories,
Museums, etc. :

BUREAU OF SCIENTIFIC RESEARCH

ENTOMOLOGICAL FIELD LABORATORIES

PHYSIOLOGICAL RESEARCH LABORATORIES

CHEMICAL RESEARCH LABORATORIES

MUSEUM OF MEDICAL SCIENCE

HISTORICAL MEDICAL MUSEUM.

This new Research Building has been constructed by The Wellcome Foundation Ltd. (183-193, Euston Road, London, England) for the various Wellcome Research Laboratories and Museums, except the Physiological Research Laboratories, which are located at Langley Court, Beckenham, Kent (Eng.), with grounds of more than 100 acres of park land; and the Entomological Research Field Laboratories, which are situated in spacious open country at Claremont, Esher, Surrey (Eng.).

During many years the Foundation has maintained medical and chemical research laboratories and museums,

but recent extensive developments in their operations have made it necessary further to extend and co-ordinate their activities.

The new building furnishes the additional accommodation required and is provided with the most modern scientific equipment.

ARCHITECTURAL DETAILS

The architecture of the new building is of the Grecian-Ionic Order. On the Euston Road façade there are twelve massive Ionic columns. The central four columns are free standing and are surmounted by a pediment, from each side of which extends a balustrade. There are nine floors in all.

The building is of Portland stone. The main entrance doors, vestibule doors and those between the galleries on the upper floors are all of bronze, as are also the balustrade railings and gates, lift cars, garage doors, windows, electrical fittings, door frames, hand rails and radiator grilles.

The internal appointments have been designed to afford every facility for efficient working. The heating and ventilating systems are of the most scientific and modern types, maintaining adequate ventilation and uniform room temperature. The auditorium, with a seating capacity of 500, has been designed to attain a high acoustic efficiency.

THE
WELLCOME RESEARCH INSTITUTION
(THE WELLCOME FOUNDATION LTD.)

THE BUREAU OF SCIENTIFIC RESEARCH

Founded 1913.

The study and investigation of medical problems, more particularly in their relation to tropical medicine and hygiene.

AFFILIATED LABORATORIES AND MUSEUMS

THE ENTOMOLOGICAL FIELD LABORATORIES

Founded 1920.

Researches into the life-history and habits of noxious insect pests, such as mosquitoes, etc.

THE PHYSIOLOGICAL RESEARCH LABORATORIES

Founded 1894.

Therapeutic investigations in Bacteriology, Physiology, Pharmacology, Serology and Veterinary Medicine.

THE CHEMICAL RESEARCH LABORATORIES

Founded 1896.

Chemical investigations and researches, particularly in connexion with organic, organo-metallic and synthetic medicaments.

THE MUSEUM OF MEDICAL SCIENCE

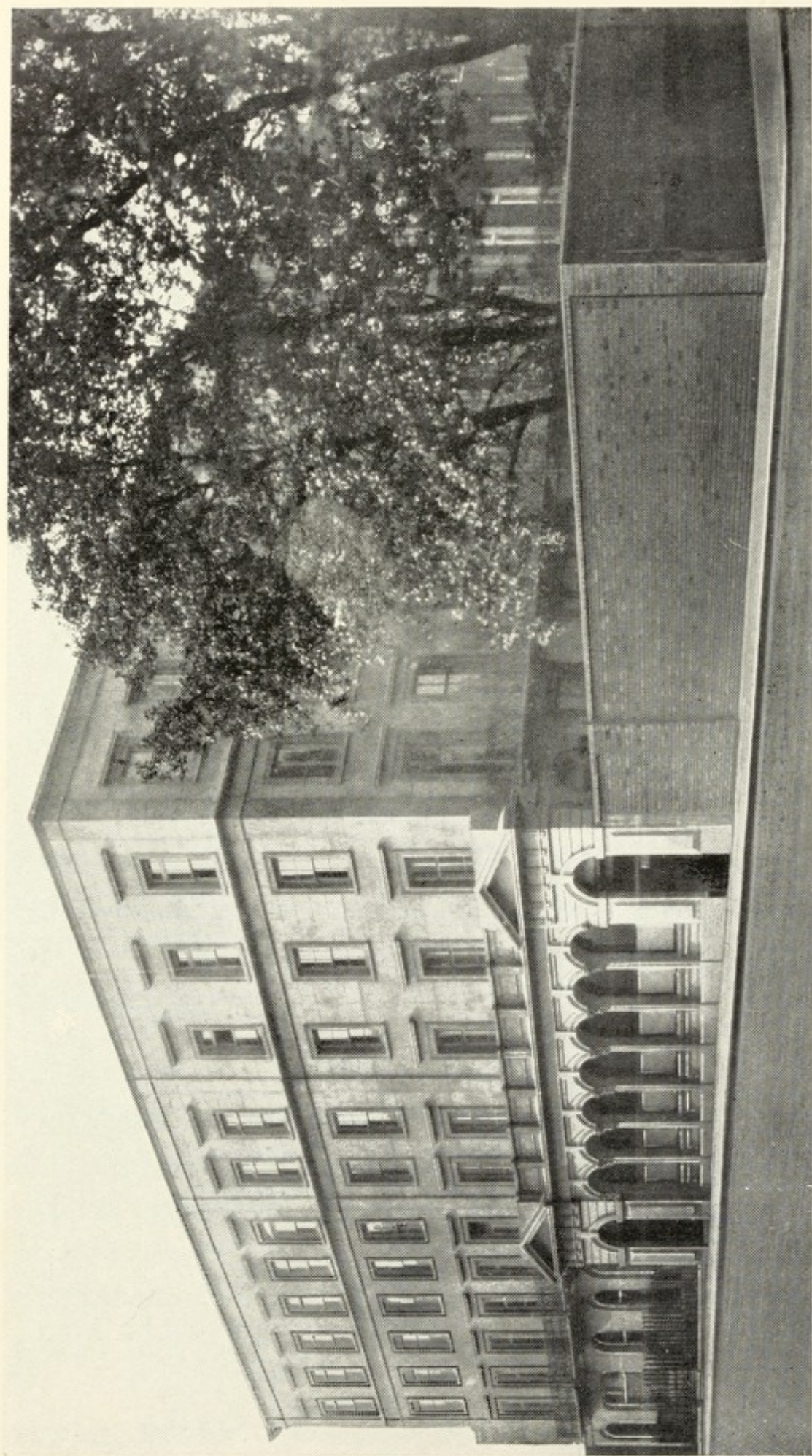
Founded 1914.

Presents a new system of visual teaching and a general survey of human disease from every aspect.

THE HISTORICAL MEDICAL MUSEUM

Founded 1913.

Illustrates the evolution and practice of medicine, surgery and allied sciences throughout the world from prehistoric times.



THE BUILDING AND SITE OCCUPIED BY THE WELLCOME BUREAU OF SCIENTIFIC RESEARCH AND MUSEUM
OF MEDICAL SCIENCE, ENDSLEIGH COURT, LONDON, ENGLAND, PREVIOUS TO THE CONSTRUCTION OF
THE WELLCOME RESEARCH INSTITUTION

FOUNDED IN 1913

* THE WELLCOME
BUREAU OF SCIENTIFIC RESEARCH

183, Euston Road, London, N.W.1

C. M. WENYON, C.M.G., C.B.E., M.B., B.S., B.Sc., F.R.S.
DIRECTOR-IN-CHIEF

THE RESEARCH LABORATORIES AND MUSEUMS
HEREIN REFERRED TO ARE AFFILIATED TO THE
BUREAU

The Bureau, which was reconstructed and enlarged in 1926, has been greatly extended in the new building, and includes a large number of research laboratories devoted to the study and investigation of medical problems, especially in relation to tropical medicine and hygiene. In addition to research laboratories, the Bureau comprises an art studio, photographic department and a large number of auxiliary rooms devoted to the preparation of specimens for research, sterilisation and other purposes.

* The late Sir Andrew Balfour, distinguished authority on tropical medicine, was Director-in-Chief of The Wellcome Bureau of Scientific Research for 10 years from the time of its foundation in 1913. For 10 years prior to 1913 he was Director of The Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. Extensive reports of the work in these Laboratories at Khartoum have been published.† As chief health officer, Sir Andrew sought and destroyed the breeding-places of mosquitoes, eliminated malaria and made Khartoum the most healthy city in Africa. The death-rate was reduced from 70 to 7 per mille. The Governor-General of the Sudan reported that no words of his could adequately express Sir Andrew Balfour's services to the country.

Sir Andrew Balfour was succeeded at Khartoum by the late Dr. A. J. Chalmers and later by Major R. G. Archibald, the present Director, who has been associated with The Wellcome Tropical Research Laboratories, Khartoum, with great distinction for 20 years.

† See Exhibit from The Wellcome Tropical Research Laboratories, Gordon Memorial College, Khartoum, in Group H—Booths 1 and 12, described on pages 23 and 24

At The Wellcome Bureau of Scientific Research investigations are conducted in various branches of medical science, medical zoology, parasitology, bacteriology, pathology, chemo-therapy and other subjects.

The research library in the building contains representative standard works, reprint files and current medical literature dealing more especially with the research departments mentioned above.

Routine teaching is not undertaken at the Bureau, but, when practicable, individual research workers who wish to follow any particular line of investigation may be given accommodation and facilities for their studies.

Information is supplied gratis to medical men, health officers and others in all parts of the world, with a view to assisting them in their work and investigations.

The results of the researches carried out at the Bureau and at its affiliated Laboratories are published for the most part in various current scientific periodicals and transactions. In addition, publications dealing with special subjects are issued from time to time by the Bureau.

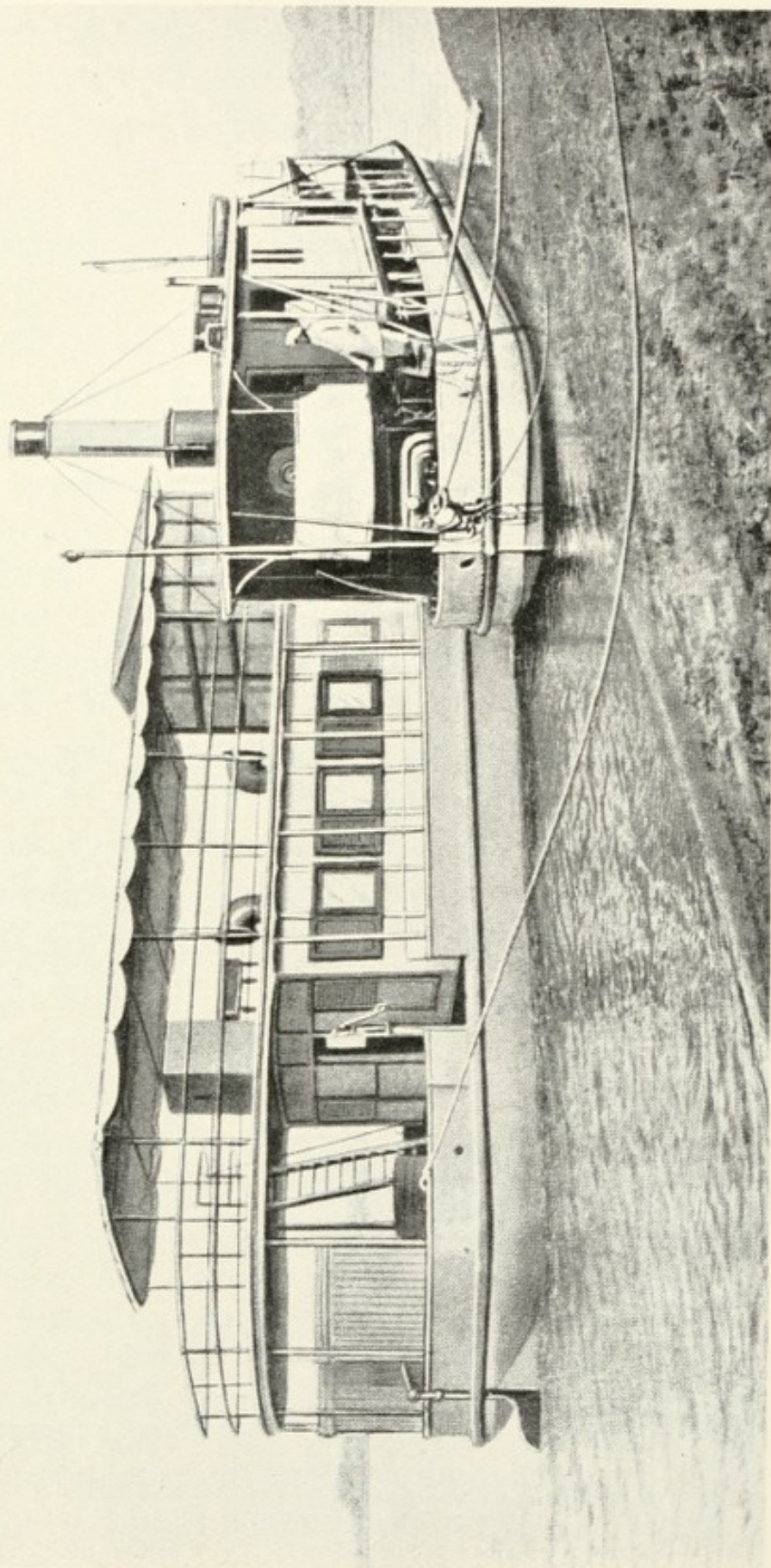
In 1913, Dr. Wellcome placed the services of Dr. Louis Sambon, a member of the staff of The Wellcome Bureau of Scientific Research, at the disposal of the official Pellagra Investigation Committee, in order that the previous investigations, commenced with Dr. Wellcome's assistance in Italy in 1910, might be continued.

In 1914, Dr. Wellcome sent Sir Andrew Balfour, then Director-in-Chief of this Bureau, on a mission to the West Indies and the South American Tropics for the purpose of investigating certain local problems in tropical diseases.

Sir Andrew visited Barbados, Grenada, Trinidad and Venezuela, whence, after travelling up the Orinoco River to Ciudad Bolívar, he worked his way back to the coast and visited Caracas and the island of Curaçao, thence proceeding to Maracaibo and subsequently to Port Colombia. He travelled south on the Magdalena River to Mariquita and thence, partly by steamer and partly by mountain railway, to Bogotá, the capital of Colombia. The return was made by trekking westwards by mountain, forest and valley, to the Rio Atrato and then northwards to Cartagena. Sir Andrew next visited the Panama Canal Zone, Jamaica and Cuba. In Panama he visited, and conferred with, General Gorgas, by whose genius results were achieved similar to those obtained by Sir Andrew Balfour at Khartoum. Malaria and other tropical diseases were exterminated and the death-rate reduced from a similar high figure to 7 per mille. Sir Andrew published the results of his investigations during this Expedition in the "Transactions of the Royal Society of Tropical Medicine and Hygiene," and in a volume under the title "War Against Tropical Disease," published by the Bureau.

Dr. Wellcome placed the Bureau of Scientific Research and its staff and resources wholly at the disposal of the British War Office throughout the great World War (1914-1918), and members of the Bureau staff were appointed to official positions in connexion with the Army Medical Hospitals in England and in the various fields of action, especially in tropical and sub-tropical areas. The work included the training of Army Medical officers for service in tropical regions.

In 1915, Sir Andrew Balfour was sent to France for the purpose of studying and advising on the possibility of improvements in ambulance equipment, and in connexion



THE WELLCOME FLOATING RESEARCH LABORATORY ON THE NILE, ANGLO-EGYPTIAN SUDAN
WITH ITS TENDER S.W. "CULÉX"

FITTED AND EQUIPPED WITH THE MOST MODERN SCIENTIFIC TECHNICAL APPLIANCES FOR
TROPICAL RESEARCH. IN CONTINUOUS USE SINCE 1907 AS AUXILIARY TO THE WELLCOME
TROPICAL RESEARCH LABORATORIES, GORDON MEMORIAL COLLEGE, KHARTOUM

with the sanitary problems of the army. Later in the same year, with the rank of Lieutenant-Colonel, he was appointed a member of the Army Medical Advisory Committee in the Near East, serving in Gallipoli, Macedonia and Egypt.

In 1916, as President of the British Army Medical Advisory Committee, Sir Andrew proceeded to India and Mesopotamia. The Medical Advisory Committee in the Near East and Mesopotamia inspected in detail every organisation concerned with the health of the troops, and reported its findings, with recommendations, not only to the War Office, but also to the local commanders, who were able immediately to take advantage of the advice and to effect a great improvement in the health of the forces.

In 1917, Sir Andrew Balfour accompanied the Inspecting Major-General as his Scientific Adviser to East Africa, where again his unrivalled experience was the means of improving the health and sanitary conditions of the army. In 1918, he was appointed President of the Egyptian Public Health Commission to formulate a plan for the reorganisation of the public health service in Egypt.

On the completion of that work, Sir Andrew Balfour proceeded to Palestine on the request of General Allenby. During the war he wrote "The Medical Entomology of Salonica" and "Memoranda on Some Medical Diseases in the Mediterranean War Area." Both these publications proved of much value, the latter especially being constantly used by practically every medical officer in the tropical and sub-tropical areas.

In accordance with Dr. Wellcome's offer and at the request of the British War Office, in 1915, Dr. Wenyon,* the present

* Prior to his connexion with The Wellcome Bureau of Scientific Research, Dr. Wenyon had been associated with Sir Andrew Balfour at The Wellcome Tropical Research Laboratories, Khartoum. In 1907, Dr. Wenyon was appointed in charge of the Wellcome

Director-in-Chief, was appointed to conduct, at The Wellcome Bureau of Scientific Research, tutorial classes in the diagnosis of protozoal infections for medical officers who were destined for service in the tropical and sub-tropical war areas. Late in 1915 he also lectured to troops on the principles of protective vaccination against typhoid fever and other diseases.

In 1916, with the rank of Lieut.-Colonel, Dr. Wenyon joined Sir Andrew Balfour on the Medical Advisory Committee, and, in Egypt, conducted investigations into the amœbic dysentery and other intestinal protozoal infections.

These researches led to important results, including the discovery of new organisms, the method by which dysentery is spread by flies, the most effective mode of administration of emetine for amœbic dysentery, and the identification of large numbers of amœbic dysentery carriers, not only amongst troops stationed in Egypt, but also amongst those just arriving from England. The immediate result was that a large amount of detention in hospital of apparently healthy men was saved, and the establishment of many unnecessary diagnostic centres was obviated. The conclusion reached was that a clinically healthy man was fit for service whether he were a carrier or not. The results of the investigations are described in detail in "Human Intestinal Protozoa in

Floating Laboratory by means of which he was able to carry out successful researches in pathology, protozoology, etc., on the Nile and its tributaries from Khartoum as far south as six degrees north latitude.

This Floating Research Laboratory is believed to be *the first* in the world. It is a two-decked vessel equipped by the founder of The Wellcome Tropical Research Laboratories, and operates as efficiently as any modern scientific research laboratory on land.

As an auxiliary to the chief Laboratories at Khartoum, it enables valuable research work to be carried out in remote parts of the country otherwise difficult or impossible of access to the research worker.

the Near East," by Dr. Wenyon and his collaborator, Dr. F. W. O'Connor.

Later in 1916 Dr. Wenyon proceeded with the Committee to India and Mesopotamia. In 1917, he was appointed consultant on malaria to the Salonika Expeditionary Force, and, in charge of the Malaria Enquiry Laboratory, carried out and organised researches into the method of spread, incidence, treatment and prevention of malaria.

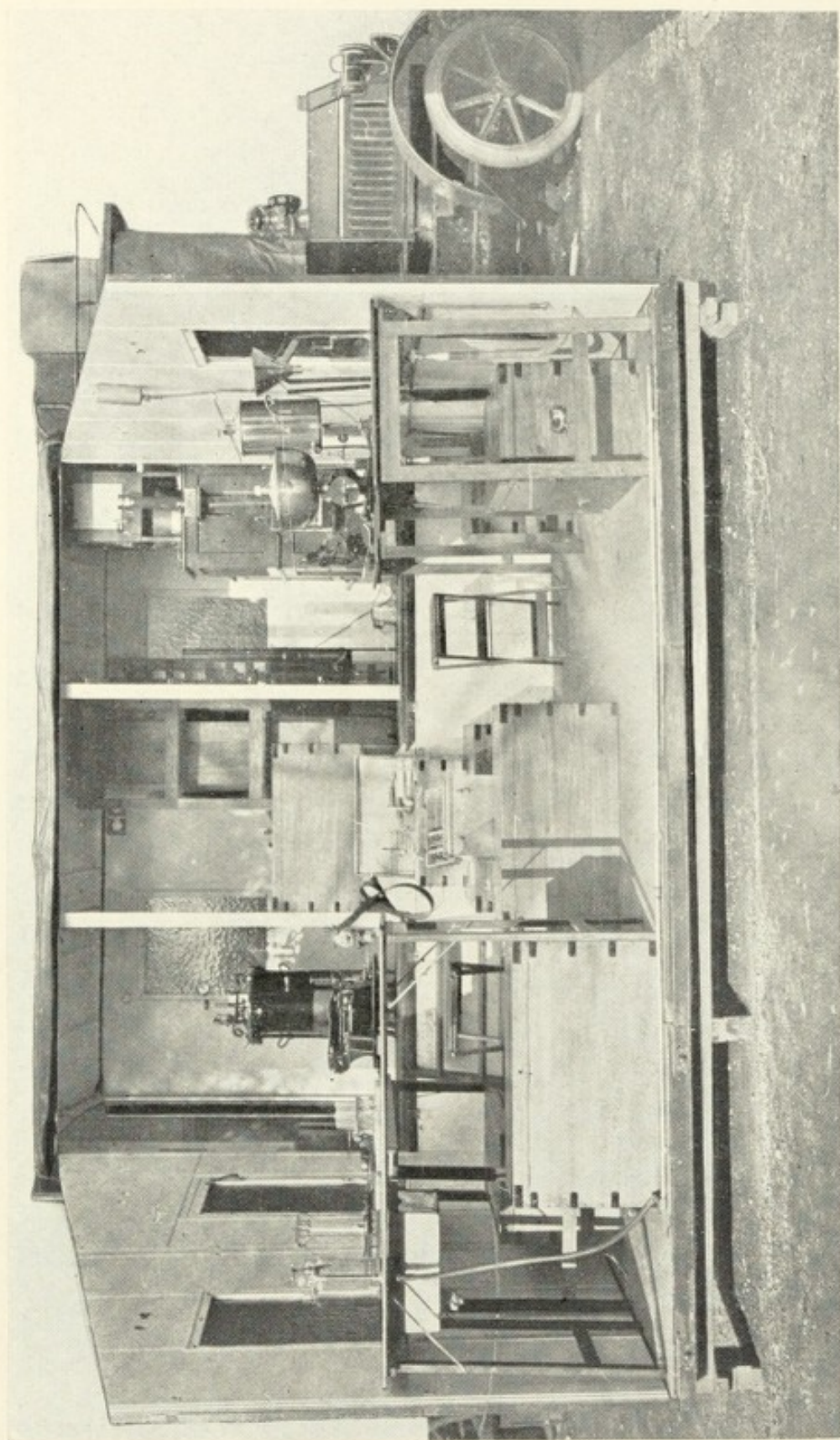
A full account of the work Dr. Wenyon carried out appears in "Malaria in Macedonia," published in the "Journal of the Royal Army Medical Corps," and in the "Medical History of the War," the latter embracing malaria as it affected troops in all the War areas. In the post-war period 1918-1920, with the rank of Colonel, Dr. Wenyon was appointed consultant pathologist to the Army of the Black Sea, serving in Turkey and the Caucasus.

On departure from the Wellcome Bureau of Sir Andrew Balfour and Dr. Wenyon on war service, in 1915-1916, Dr. Stevenson was appointed Acting-Director of the Bureau, and the tutorial classes were continued there by Mr. Clifford Dobell. Dr. Stevenson and other members of the staff of the Bureau carried out extensive and important investigations on amœbic dysentery and other protozoal infections amongst troops invalided from abroad, particularly in the Dominion and Colonial Hospitals in this country.

In 1915, Dr. Wellcome organised a special War Ambulance Construction Commission and provided a prize fund for the purpose of securing improvements in motor ambulances for service field work, etc.

The Commission consisted of :

Sir Frederick Treves, Bart., G.C.V.O., C.B., F.R.C.S.,
Chairman British Red Cross Society.



THE ARMY MEDICAL MOTOR FIELD LABORATORY

Presented to the British War Office by Dr. Wellcome, and used during and since the Great War in Palestine, Mesopotamia, Egypt, etc. View of a section and its equipment after removal of one end of annexe. The whole can be put together or packed for transport in two hours

Major-General Sir John Cowans, K.C.B., M.V.O., Quartermaster-General to the Forces.

Surgeon-General Sir Arthur May, K.C.B., Director-General, Medical Department, R.N.

Surgeon-General Sir Alfred Keogh, K.C.B., Acting Director-General, Army Medical Service.

The Rt. Hon. Sir Claude MacDonald, P.C., G.C.M.G., K.C.B., St. John Ambulance Association.

Sir John Furley, C.B., St. John Ambulance Association.

The Rt. Hon. Lord Montagu of Beaulieu.

Prof. W. E. Dalby, M.A., M. Inst. C.E., M.I.Mech.E., F.R.S.

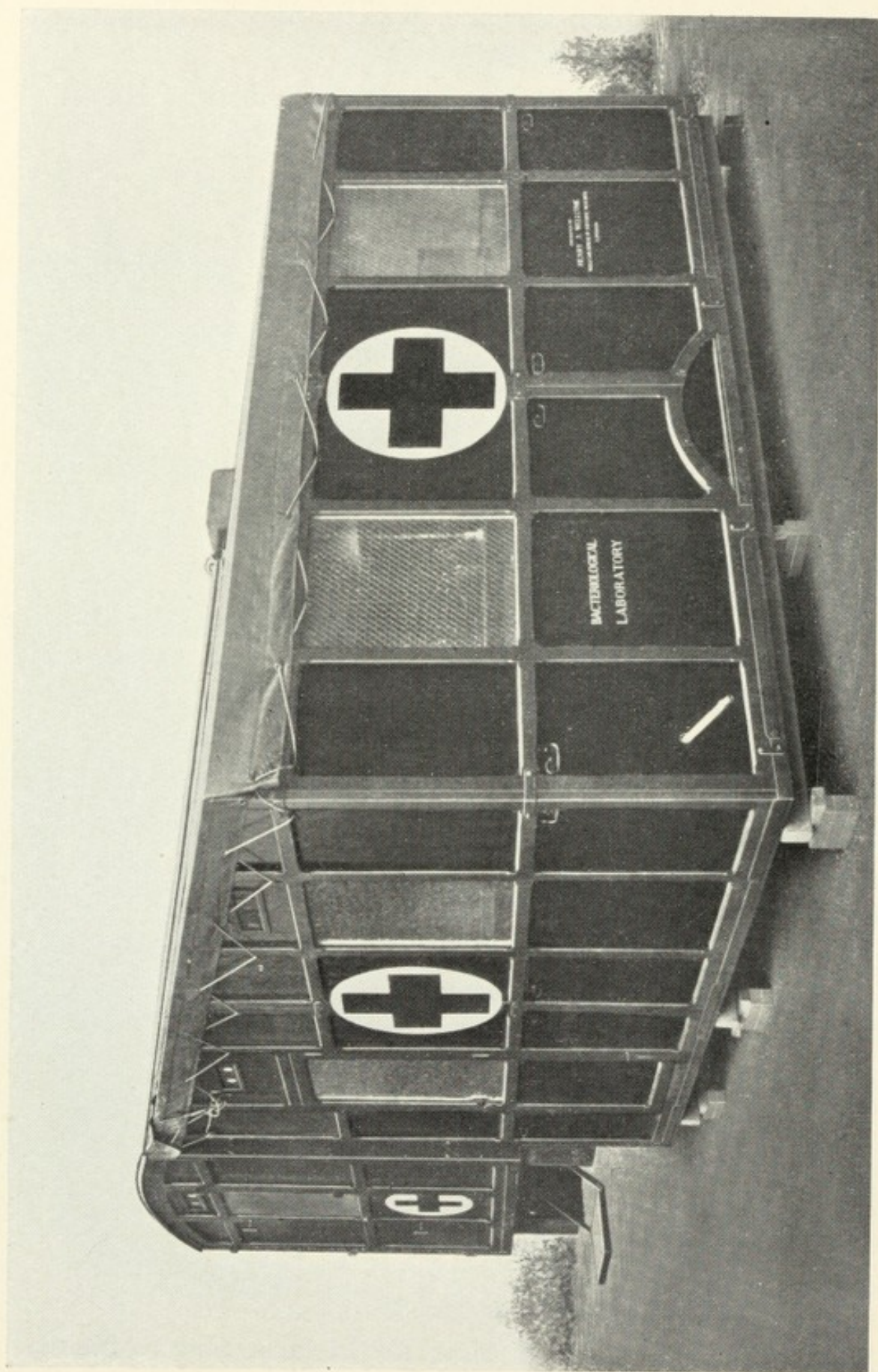
John Robertson, Esq.

Sir Andrew Balfour acted as Honorary Secretary and Treasurer of the Commission.

Two hundred and thirty-three designs were submitted and considered by the Commission, who as a result were enabled to bring many improvements to the notice of the Admiralty, War Office, British Red Cross Society, St. John Ambulance Association and other bodies.

The best designs were submitted by Army service competitors, who, unfortunately, according to official regulations, were not permitted to accept the awards. Dr. Wellcome therefore diverted the prize fund of £2000 to the construction of a Mobile Medical Field Laboratory, which he presented to the British War Office early in 1918, through the Bureau of Scientific Research.

This Medical Motor Field Laboratory was attached to the British Army during the campaign in Palestine, Mesopotamia and Egypt as a Mobile Laboratory. It enabled the bacteriological work of the Army to be promptly carried out in the field for all Hospital Camps within a radius of more than 10 miles of headquarters. This work covered blood films for malaria and relapsing



THE ARMY MEDICAL MOTOR FIELD LABORATORY
Exterior view. Body and Annexe fully erected for use

fever, blood cultures, faecal examinations for dysentery and cholera, agglutination tests for typhoid, paratyphoid and typhus. During the final advance the mobility of the Laboratory largely extended its field of utility. The malarial work increased greatly, and as many as 600 blood films were examined daily. Much of the success of the Laboratory during the campaign was due to the efficiency of the Officer-in-Charge, Dr. J. D. Benjafield. After the Armistice the Laboratory was detailed to work on the widespread influenza epidemic which then prevailed. In 1919, it proceeded to Egypt where it enabled valuable work to be carried out.

After the war Sir Andrew Balfour returned to his post at the Bureau of Scientific Research, and later his services were placed by Dr. Wellcome at the Government's disposal for the purpose of investigating conditions and making recommendations for improving the health of Mauritius, which at that time was devastated by disease. He made tours of investigation also in respect to tropical diseases and sanitation in the West Indies. The results of Sir Andrew's investigations are given in a series of seven detailed Government reports, each one dealing with sanitary matters in a particular area. Recommendations were made for improvements in relation to water supplies, refuse destruction, ankylostomiasis, schistosomiasis, dysentery, plague and malaria, while it was shown that there was scope for the re-organisation and extension of the sanitary and hospital services, including laboratory facilities.

Subsequently (1922), Dr. Wellcome placed the services of Dr. MacGregor, Entomologist to The Wellcome Bureau of Scientific Research, at the disposal of the Colonial Office for the purpose of studying the mosquitoes of Mauritius. Dr. MacGregor discovered the presence in the Island of a second species of malaria-carrying mosquito and

determined the distribution of the mosquitoes and the factors favouring their development. A scheme of control was elaborated and recommendations for the development of anti-malarial work were given. A full report of Dr. MacGregor's investigations was published by the Bureau under the title "Mosquito Surveys."

In 1923, Sir Andrew Balfour retired from his post as Director-in-Chief of The Wellcome Bureau of Scientific Research and was succeeded by Dr. Wenyon. Sir Andrew Balfour was subsequently appointed Director of The London School of Hygiene and Tropical Medicine.

SCIENTIFIC

PUBLICATIONS AND RESEARCH REPORTS

The Wellcome Bureau of Scientific Research has issued

268 Scientific Publications and Research Reports
including the following major publications:—

BARRIER CHARTS FOR HEALTH OFFICERS : A Synopsis of Preventive Measures against Communicable Disease, in Four Tables. By S. H. Daukes, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H.

WAR AGAINST TROPICAL DISEASE : Seven Sanitary Sermons on Tropical Hygiene and Administration. By Sir Andrew Balfour, K.C.M.G., C.B.

HUMAN INTESTINAL PROTOZOA IN THE NEAR EAST : By C. M. Wenyon, C.M.G., C.B.E., M.B., B.S., B.Sc., F.R.S. ; and F. W. O'Connor, M.R.C.S., L.R.C.P., D.T.M.

MOSQUITO SURVEYS : A Handbook for Anti-Malarial and Anti-Mosquito Field Workers. By Malcolm E. MacGregor, M.A., D.Sc.

THE MEDICAL MUSEUM.—Modern Development, Organisation and Technical Methods based on a new system of Visual Teaching. By S. H. Daukes, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H.

NOTABLE EXHIBITS FROM
THE WELLCOME RESEARCH INSTITUTION
AT THE
CHICAGO EXPOSITION, 1933

MODEL OF THE WELLCOME RESEARCH INSTITUTION
BUILDING, LONDON (ENG.)

GROUP H—BOOTHS 1 AND 12

This model gives an idea of the imposing character of this building, specially erected to provide adequate accommodation for the Research Laboratories and Museums founded by Sir Henry Wellcome.

(See description of Building, pages 7 and 8)

THE ARMY MEDICAL MOTOR FIELD LABORATORY

GROUP H—BOOTHS 1 AND 12

A screen bearing photographs illustrating the Laboratory on active service in the field, in different stages of erection, and as set up for Laboratory work.

This Mobile Field Laboratory was presented by Sir Henry Wellcome to the British War Office, and was attached to the Expeditionary Forces in Palestine, Mesopotamia and Egypt during the Great War.

It is a self-contained completely equipped mobile Laboratory, which can be erected for use, dismantled and repacked in two hours.

(See also pages 17-21)

NOTABLE EXHIBITS FROM THE
WELLCOME TROPICAL RESEARCH LABORATORIES
GORDON MEMORIAL COLLEGE, KHARTOUM
AT THE
CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1 AND 12

MODEL of the FLOATING RESEARCH LABORATORY presented and equipped by Sir Henry Wellcome for the use of the Wellcome Tropical Research Laboratories, Khartoum,

to enable research work and laboratory investigation to be carried out in remote parts of the country otherwise difficult or impossible of access to the research worker.

(See also pages 14-16)

GROUP H—BOOTHS 1 AND 12

Copies of the RESEARCH REPORTS of The Wellcome Tropical Research Laboratories, Khartoum, are exhibited in a special case. Photographs of the Buildings, drawings, photographs, etc., illustrating scientific and economic research in the Laboratories and in the Field, resulting from which health in the Sudan has been greatly improved and its prosperity restored.

NOTABLE EXHIBITS FROM THE WELLCOME BUREAU OF SCIENTIFIC RESEARCH AT THE CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1, 12, 13 AND 24

The work of this Research Bureau is demonstrated by exhibits dealing with investigations of diseases, particularly those prevalent in tropical and sub-tropical lands.

DEPARTMENT OF HELMINTHOLOGY

The exhibit consists of a small collection of human and other Tapeworms (*Cestoda*) demonstrating the varieties of these parasites, which vary greatly in size, from the fish tapeworm (*Diphyllobothrium latum*) found in man, which may be 10 metres (30 feet or more) in length, down to almost microscopic forms, such as the "dwarf" tapeworm of the mouse (*Hymenolepis nana*).

DEPARTMENTS OF ENTOMOLOGY AND PROTOZOOLOGY

AFRICA.—SLEEPING SICKNESS in man, and also Nagana and other diseases of domestic animals, are caused by trypanosomes, organisms which are transmitted through the bite of the Tsetse-fly (*Glossina*), one of the most important blood-sucking flies of Africa.

The exhibit includes illustrations of the fly, its complete life-history and the structure of its biting parts.

Here, too, is illustrated the life-history of a crocodile trypanosome, which is also conveyed by a tsetse fly.

DEPARTMENT OF EXPERIMENTAL PATHOLOGY

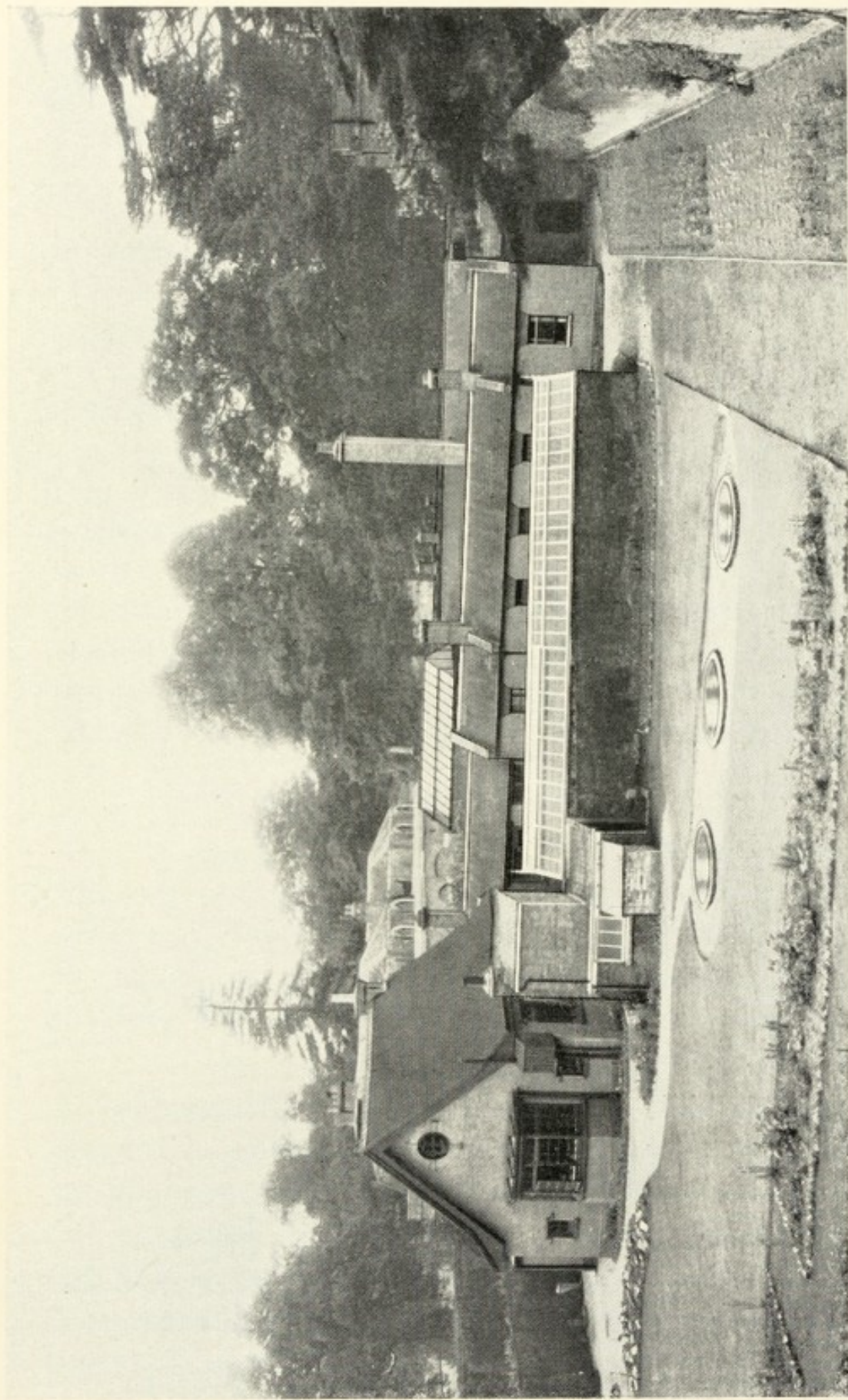
Specimens and illustrations of RIFT VALLEY FEVER—a very fatal disease of sheep in Kenya Colony, Africa, which also affects man, causing fever with headache and pains in the limbs. It is caused by a filterable virus, and much work on this and allied diseases has been carried out at The Wellcome Bureau of Scientific Research.

DEPARTMENT OF BACTERIOLOGY

This Department in its exhibit illustrates the importance of *Electric Charge in certain Immunity Reactions*. This work suggests possibilities in the treatment of certain diseases and throws fresh light upon the problem of immunity.

Another exhibit deals with the *Differentiation of Bacterial Types* by the fermentation of salts of organic acids. Practical use of this research has been made by the Metropolitan Water Board of London (Eng.).

The date of its publication (1921) establishes that the method was first originated in The Wellcome Bureau of Scientific Research.



THE WELLCOME ENTOMOLOGICAL FIELD LABORATORIES, CLAREMONT, ESHER, SURREY (ENG.)
Affiliated to The Wellcome Bureau of Scientific Research

See Exhibit in Group H—Booths 1 and 12

ESTABLISHED IN 1920
THE WELLCOME
ENTOMOLOGICAL FIELD LABORATORIES
OF
THE BUREAU OF SCIENTIFIC RESEARCH

These Entomological Field Laboratories were originally located in the Royal Horticultural Society's Gardens at Wisley, Surrey (Eng.), where, through the courtesy of the Society's Committee and the Director of the Gardens, facilities had been granted for the study of the insect pests harboured by the plant life in the gardens.

These Laboratories have now been transferred to more commodious premises at Claremont, Esher, Surrey (Eng.), demanded by the extensive development of the work.

The Laboratories carry on researches into the life-history and habits of such noxious insect pests as mosquitoes, etc., a careful study of which in the field affords the surest means of discovering methods for their control and extermination.

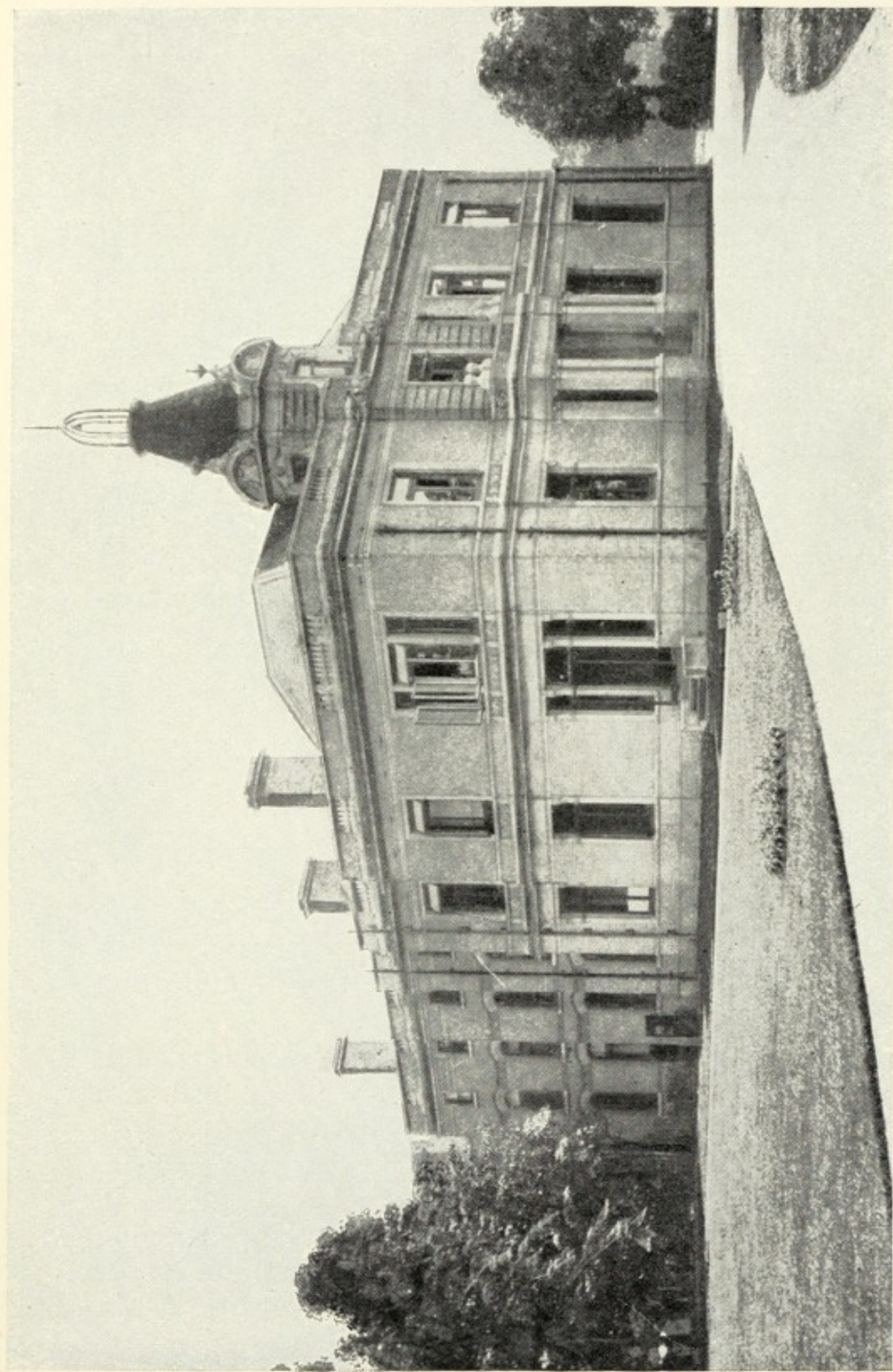
NOTABLE EXHIBITS FROM
THE WELLCOME
ENTOMOLOGICAL FIELD LABORATORIES
AT THE
CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1 AND 12

NEW METHODS in Entomological Research are illustrated by various appliances, such as safety containers for infected mosquitoes, apparatus for collecting and observing mosquitoes.

A special pump for aerating the water in which developmental forms of mosquitoes live, and a type of bird case for use in experimental malaria work are shown.

On an easel, illustrations are displayed demonstrating the conditions found during the investigation of malaria in Mauritius. During this investigation a new malaria-carrying mosquito (*Anopheles funestus*) was discovered and a report made upon the steps necessary for prevention of malaria in the Island.



MAIN RESEARCH BUILDING
THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES
LANGLEY COURT, BECKENHAM, KENT (ENG.). FOUNDED IN 1894
Affiliated to The Wellcome Bureau of Scientific Research

FOUNDED IN 1894

THE WELLCOME
PHYSIOLOGICAL RESEARCH
LABORATORIES

Langley Court, BECKENHAM, KENT (ENG.)

R. A. O'BRIEN, C.B.E., M.D., B.S., D.P.H.

DIRECTOR

The development of Therapeutics from a largely empirical code into an experimental science is one of the most striking and significant results of the world-wide scientific activity which has characterised the past half-century. The change has been brought about by the immense advances in the contributory sciences of Pathology, Bacteriology, Physiology and Pharmacology, which, indeed, may all be said to date their history as experimental sciences from within the same period.

The necessity for this development, and a desire to promote original research in these fields, led to the foundation, in 1894, of The Wellcome Physiological Research Laboratories, the activities of which cover a wide field of therapeutic investigation in Bacteriology, Physiology with Pharmacology, Serology and Veterinary medicine. These Laboratories are located at Langley Court, Beckenham, Kent (Eng.), and occupy an estate of more than 100 acres of park land.

There are eight main buildings and approximately 90 laboratories and auxiliary offices.



A SECTION OF ONE OF THE BACTERIOLOGICAL RESEARCH LABORATORIES
AT THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES, LANGLEY COURT
BECKENHAM, KENT (ENG.)

The production of anti-sera and of bacterial preparations for specific inoculation, and the researches in bacteriology and the mechanism of immunity arising from the development of this Department of Therapeutics, have been an important part of the work of these Laboratories from the time of their foundation. During the late Great War many million doses of Tetanus Antitoxin Serum were supplied for the troops from these Laboratories.

These Laboratories also took a very prominent part in the research development and production of gas-gangrene antitoxin, of which also great quantities were supplied to the military authorities in the various war areas. Since the war, this antitoxin has been widely employed in abdominal surgery, puerperal septicæmia, and in grossly-infected wounds.

These Laboratories were pioneers in the production and introduction of anti-diphtheritic and other sera, and by extensive original research have from the first done much to raise the standard of this group of medicaments and to maintain production at a high level of concentration and efficiency.

The Pharmacological Department carries on pioneer investigations into the mode of action and the nature of the medicinal agents of vegetable, animal and mineral origin, and the production by synthesis of substances identical with, or related to, the naturally-occurring active principles, both in structure and in physiological action. Numerous medicinal agents have been investigated from all points of view in The Wellcome Physiological Research Laboratories, and many have been physiologically examined.

As an example, the discovery and isolation of ergotoxine, now admitted to be an active therapeutic constituent of ergot, was carried out in these Laboratories in 1906, during the directorship of Dr. H. H. Dale.* This was followed by the isolation of the associated amines 'Tyramine' and 'Ergamine' (Histamine), which were found also to possess definite physiological activity.

Incidental to this pharmacological work has been research on the purely physiological problems which it suggests and involves.

The Wellcome Physiological Research Laboratories were pioneers in the physiological standardisation of medicinal products and have done a vast amount of original work, particularly in regard to the standardisation of sera, ergot, strophanthus, digitalis, etc. Methods have also been originated and developed for controlling and standardising by physiological experiment the activity of these and other organic medicinal agents to which chemical methods of assay are not applicable.

Amongst many departments of research, the Veterinary Section has carried out numerous valuable investigations into the ætiology, prophylaxis and treatment of diseases of domestic animals. Already notable contributions to knowledge regarding prophylaxis and treatment of lamb dysentery, braxy, canine jaundice and distemper, and diseases of poultry, have been made as the results of specialised investigations by research workers in this department, and suitable prophylactic sera and vaccines have been issued for use by the veterinary

* *Journal of the Chemical Society*, Vol. 91, page 337

by the veterinary profession. This work forms a very important part of the Laboratories' activities and is being developed progressively.

While devoted primarily to original research, the results of which appear from time to time in scientific publications, the Laboratories have performed much valuable work of a utilitarian nature.

SCIENTIFIC PUBLICATIONS AND REPORTS

The Wellcome Physiological Research Laboratories have issued

More than 325 Scientific Publications and Research Reports

NOTABLE EXHIBITS FROM THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES AT THE CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1, 12, 13 AND 24

Charts, photographs and other exhibits illustrate recent research work carried out in these Laboratories and dealing with *Diphtheria*, *Tetanus* and *Staphylococcus Antitoxins*.

Methods of preparation, concentration, testing, standardisation, etc., are shown, and the progress made in recent years is demonstrated.

The reduction of mortality during the Great War resulting from the use of tetanus and anti-gas-gangrene antitoxin is strikingly demonstrated.

Extensive pioneer work of an important character has been carried out in these Laboratories in the preparation of concentrated sera. Special interest therefore attaches to the exhibit demonstrating the advances made.

Pharmacological Exhibits include specimens of the Salts of Ergotoxine and the other active principles of Ergot, first isolated by The Wellcome Physiological Research Laboratories. Photographs show the physiological action of these alkaloids on the blood-pressure and uterus.

Biological assay, as carried out in the Laboratories by new methods and by instruments of great delicacy and precision, is illustrated.

The instruments shown include :—

A micrometer balance for rapid weighing of quantities from 1-30 mgms. with great accuracy.

A micrometer syringe for measuring accurately infinitesimal quantities of fluid.

VETERINARY RESEARCH WORK, as carried out at The Wellcome Physiological Research Laboratories, includes in its survey Lamb Dysentery, Dog Distemper, Braxy in Sheep, Yellows in Dogs (Canine Jaundice), Bacillary White Diarrhoea in Poultry, Tetanus in Horses, Fowl Pox.

Resulting from this research work, lamb dysentery can be almost entirely prevented, whereas probably 100,000 lambs formerly died of the disease annually in Great Britain alone. Effective prophylactic treatment has become available for other diseases, and, by the issue of suitable vaccines and sera, complete protection against canine distemper has been made possible.

FOUNDED IN 1896

* THE WELLCOME
CHEMICAL RESEARCH LABORATORIES

183, Euston Road, London, N.W.1

T. A. HENRY, D.Sc. (Lond.)

DIRECTOR

Formerly at

6, King Street, London (Eng.), E.C.

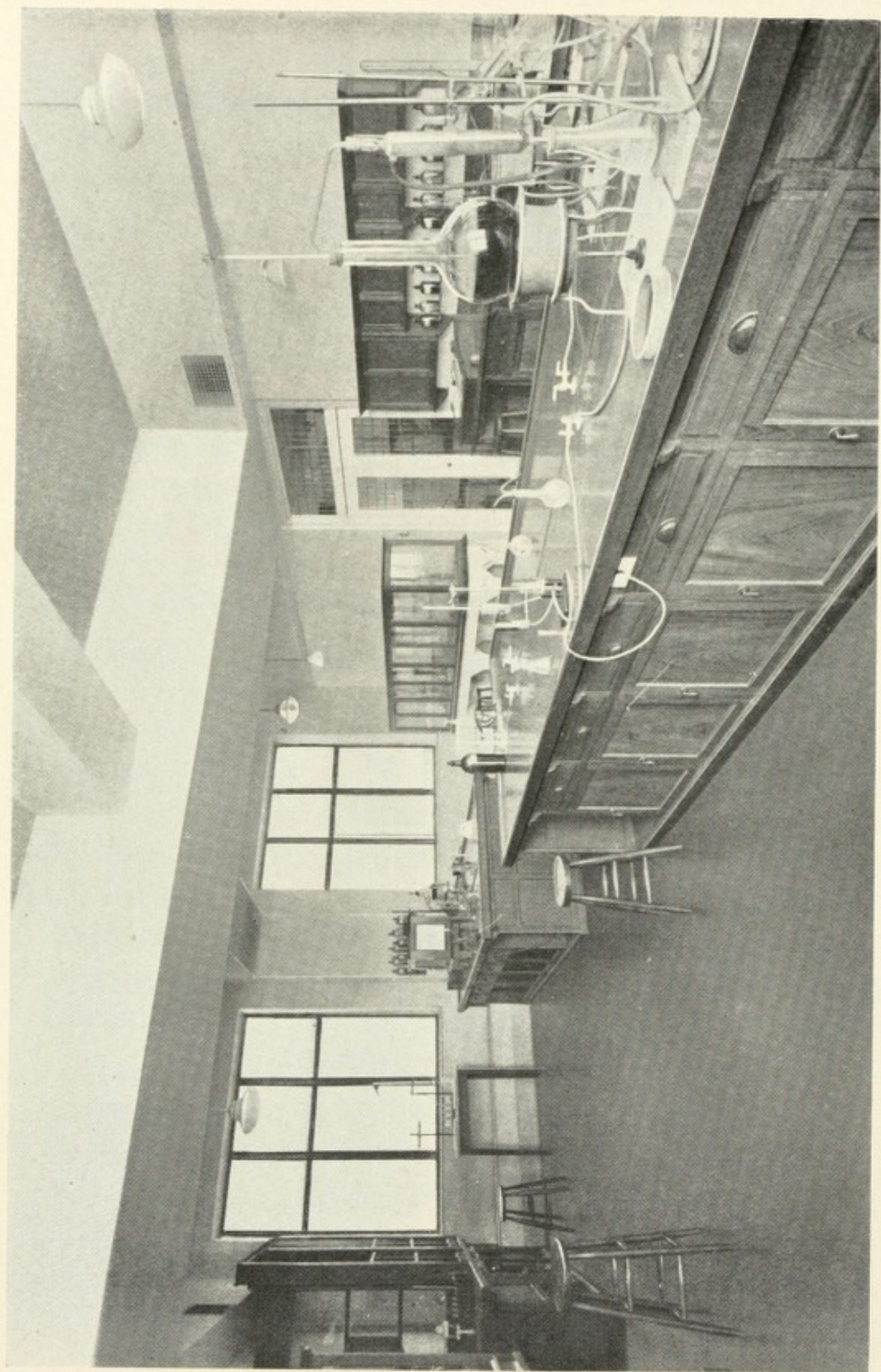
When these Chemical Research Laboratories were founded 37 years ago, little was known regarding the composition of many of the natural drugs in common use, the production of synthetic medicinal agents was just beginning, and few chemists had the temerity to work at such biological problems as the isolation of hormones.

The advance in therapeutics made since then has been mainly in these three directions, and the work done in these Laboratories has been of the wide range necessary to keep in touch with these lines of progress. Exhaustive investigations of a large number of natural drugs have been carried out and their active principles isolated and characterised.

In co-operation with The Wellcome Physiological Research Laboratories, these have been examined pharmacologically, and, as a result, the use in medicine of many natural remedial agents has been placed on a sound scientific basis.

In some instances alkaloids and other active principles of plants have for the first time been made available to the physician in a pure condition.

* Frederick B. Power, Ph.D., LL.D., especially distinguished for his researches in plant chemistry, was Director of these Laboratories for 18½ years from the date of their foundation, and left a remarkable record of scientific achievement.



A SECTION OF ONE OF THE WELLCOME CHEMICAL RESEARCH LABORATORIES
183, EUSTON ROAD, LONDON, N.W.1

The information gained in these investigations has suggested new lines of work for the production of synthetic drugs, and many new substances of this character have been prepared and tested.

With the co-operation of The Wellcome Bureau of Scientific Research and The Wellcome Physiological Research Laboratories, much attention has been given to work on organo-metallic compounds for the treatment of specific protozoal diseases.

These varied investigations have involved the solution of many purely chemical problems, and have therefore led to valuable additions to our knowledge of pure chemistry, as well as to results of practical therapeutic value.

SCIENTIFIC PUBLICATIONS AND REPORTS

The Wellcome Chemical Research Laboratories have issued

More than 275 Scientific Publications and Research Reports

NOTABLE EXHIBITS FROM
THE WELLCOME
CHEMICAL RESEARCH LABORATORIES
AT THE
CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1, 12, 13 AND 24

The exhibits of these Laboratories are devoted mainly to demonstrations of investigations dealing with substances employed in the treatment of disease.

ANTI-MALARIAL AGENTS

- (a) Effects of cultivation of Cinchona on yield of Alkaloids, particularly quinine ;

- (b) Mixed cinchona alkaloids ; “Totaquina” ;
- (c) Principal alkaloids of cinchona—specially purified ;
- (d) Modified cinchona alkaloids for trial in bird malaria ;
- (e) Natural drugs with local reputations as remedies for malaria.

AMŒBICIDAL AGENTS

Researches on the alkaloids of Ipecacuanha.

Kurchi Bark and its constituent alkaloids.

Alleged cures for dysentery.

ANTHELMINTICS

Researches on Chenopodium or American Wormseed oil ;
Specimens of constituents, including the sole active principle—Ascaridole.

Phenols prepared for trial in hook-worm disease.

Species of Artemisia examined for santonin.

ANTIMONIAL SUBSTANCES

Drugs representative of the “emetics,” used in the treatment of sleeping sickness and bilharzia, and of organic compounds of antimony derived from *p*-aminophenylstibinic acid ; the efficiency of the latter series in the treatment of kala azar is a noteworthy achievement of chemotherapy.

ANTI-LEPROTIC AGENTS

Researches, commencing in 1904,* on chaulmoogra and hydnocarpus oils, and on oils of other less well-known Flacourtiaceous seeds.

Modern methods of utilising the characteristic acids of these oils.

Compounds of copper and of mercury representative of a series prepared for trial in leprosy.

* See Dr. F. B. POWER, page 44

FOUNDED IN 1914

THE WELLCOME
MUSEUM OF MEDICAL SCIENCE
INCLUDING TROPICAL MEDICINE AND HYGIENE
183, Euston Road, London, N.W.1

S. H. DAUKES, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H.
DIRECTOR

Formerly at
Endsleigh Court, London (Eng.)

This Museum, affiliated to The Wellcome Bureau of Scientific Research, then located at 10, Henrietta Street, London (Eng.), W. 1., was founded in 1914. In the course of time it has been greatly developed and extended in scope. The Museum of Medical Science, after a period of further development and reconstruction at Endsleigh Court, was reopened in 1926 by the Rt. Hon. Neville Chamberlain, then the British Minister of Health.

The Museum of Medical Science presents an entirely new system of visual teaching.

The purpose and plan of this Museum is to give a general survey of human disease from every aspect. The causation, pathology, symptomatology, treatment and prevention of disease are demonstrated by means of pathological specimens, models, paintings, photographs, etc., in such a way that they convey a graphic picture of the more important features.

Associated with each disease a short summary is set forth of the important points ; also there are files containing abstracts with regard to all the more recent work.

A museum demonstration of the microscopic side of morbid anatomy presents certain difficulties; an effort has been made to overcome these by means of colour photo-micrography. In many of the sections these photographs are shown in special illuminated cases. Thus an attempt has been made to provide a continuous demonstration of disease which will fix itself on the attention and memory of those who visit the Museum.

The Museum of Medical Science is a Research Museum and is open to Medical Men, Health Officers and Students, of all countries, also to laymen interested in medicine, if introduced by a registered Medical Practitioner.

Many Teachers of Medicine, Surgery and Hygiene have found this Museum helpful to them in effectually illustrating the various branches of Medical and Surgical Science to their Students, and they are cordially invited to continue such use. Arrangements can be made in advance for teachers to give their classes demonstrations at the Museum.

During recent years The Wellcome Museum of Medical Science has participated in many Health Exhibitions at the request of the British Government.

In 1924, at the Wembley Exhibition, this Museum was responsible for organising and installing the Tropical Diseases Section in the Government Pavilion and, in addition, for supplying many other important exhibits.

In the 1925 Wembley Exhibition, at the request of the Ministry of Health, the Director of The Wellcome Museum of Medical Science organised and supervised the Hygiene Demonstration in the Government Pavilion, in which all departments of the Ministry participated. Much of the material was lent by the Wellcome Museum of Medical

Science. A large part of this exhibit was subsequently displayed at Dunedin Exhibition, and further assistance given to the New Zealand Government.

In 1930, at the request of the Government Department, The Wellcome Museum of Medical Science organised the Tropical Health Exhibit in the British Pavilion at the Maritime and Colonial Exhibition, Antwerp. The materials and specimens were supplied mainly by The Wellcome Museum of Medical Science and the Liverpool School of Tropical Medicine. So successful was this exhibit that it was subsequently transferred to Buenos Aires and then to the Dresden Exhibition.

The entire organisation of the British Health Section of the Paris Colonial Exhibition in 1931 was carried out by The Wellcome Museum of Medical Science at the request of the Government Department concerned. For this Section, which was designed on a very large scale and embraced practically all the important diseases which affect British Dominions and Colonies, the scientific exhibits were devised entirely from the resources of the Wellcome Museum.

Whilst many sections of the Museum are complete and well supplied with material, some sections, which have only recently been organised, are in an early stage of development. Much of the success of the Museum depends upon its final completeness and *the continued co-operation, help, advice and generous contribution of specimens and information by Medical Men and other Scientists interested in this field of work in various parts of the world.* Indebtedness for such help is most gratefully acknowledged.

NOTABLE EXHIBITS FROM
THE WELLCOME
MUSEUM OF MEDICAL SCIENCE
AT THE
CHICAGO EXPOSITION, 1933

GROUP H—BOOTHS 1, 12, 13 AND 24

The exhibits of this Research Museum are designed to demonstrate the original methods of display adopted in order to provide *a system of visual teaching giving a general survey of human disease from every aspect.*

ILLUMINATED STATISTICAL DEVICES give information with regard to the prevention and treatment of disease during the last century.

Here can be seen the reduction in malaria resulting from carefully devised schemes ; the reduction in sleeping sickness by destruction of tsetse flies ; the reduction in undulant fever by prohibition of goat's milk which carries the germs ; the reduction in death-rate from kala azar by the use of antimony compounds ; and the reduction in incidence of plague by prophylactic inoculation.

Other statistical charts deal with the decline in death-rate from all causes in England and Wales during the last eighty years ; the decline in death-rate from tuberculosis, smallpox, typhus, scarlet fever and typhoid fever ; and the reduction in tetanus during the Great War, due to the use of anti-tetanic serum.

MALARIA EXHIBIT

Illustrations show how malaria is caused ; how mosquitoes breed and carry the disease ; how the parasites assume different forms in the life-cycle.

There is a wax model of *Anopheles costalis*, one of the most important carriers of malaria in Africa ; also models of its developmental forms—the egg, larva and pupa.

Portraits of the British pioneers in malaria work :

Sir Patrick Manson, known as the "Father of Tropical Medicine," who initiated the experimental research work which identified the mosquito as the carrier of malaria.

Sir Ronald Ross, who participated in these investigations.

Photomicrographs in colour show the parasites of malaria in the human blood and in the mosquito.

SLEEPING SICKNESS EXHIBIT

A wax model is shown of the tsetse fly, whose bite conveys the parasite causing sleeping sickness ; also models of the larva and pupa.

Transparencies show details of the disease, also its effect upon man.

Portraits of two British pioneers in sleeping sickness work :

- (1) Sir David Bruce, who investigated the disease ;
- (2) J. Everett Dutton, who discovered *Trypanosoma gambiense*, and died of tick fever whilst investigating that disease.

KALA AZAR EXHIBIT

Transparencies are used to show the causative parasite *Leishmania donovani*, physical appearance of sufferers from the disease, and other details.

Portraits of two British pioneers in tropical medicine, Sir William Leishman and Colonel Donovan, who were responsible for the discovery of the parasite.

LEPROSY EXHIBIT

Transparencies illustrate the causal organisms, the possibility of fly transmission or direct passage to food from infected persons.

Four pictures show clinical conditions of nodular leprosy, nerve leprosy, leprosy in childhood and mutilation due to leprosy.

A leper colony, providing isolation during infective stages, employment, recreation and social amenities during treatment, is illustrated.

A Photograph of Sir Leonard Rogers, who has worked extensively upon the prevention and treatment of the disease and is largely responsible for the British anti-leprosy campaign, and a Portrait of Dr. F. B. Power, who, in 1904, when Director of The Wellcome Chemical Research Laboratories, did the pioneer work on the Ethyl Esters of Chaulmoogra, which led to the production of the most successful anti-leprotic medicinal agents.

PLAGUE EXHIBIT

Transparencies illustrate the causal organism—*Bacillus pestis*; the rat flea (*Xenopsylla cheopis*), which transmits the disease to man; clinical pictures; methods of rat destruction and other preventive methods.

Portraits of Sir William Simpson, who studied the prevention of the disease, and Bacot, who elucidated the method.

BILHARZIASIS EXHIBIT

Bilharziasis, a common disease in Egypt.

Transparencies illustrate the worm, *Schistosoma mansoni*, which causes the intestinal form of the disease, its life-cycle in water, snails and man.

Portraits of two British pioneers :

- (1) R. T. Leiper, who studied the mode of transmission in Egypt;
- (2) J. B. Christopherson, who introduced into Egypt widespread treatment with tartar emetic.

FOUNDED IN 1913

THE WELLCOME
HISTORICAL MEDICAL MUSEUM

183, Euston Road, London, N.W.1

SIR HENRY WELLCOME, LL.D., F.S.A., F.R.S.

DIRECTOR

L. W. G. MALCOLM, M.Sc. (Cantab.), F.R.S.E.

CONSERVATOR

This Museum consists of extensive collections of rare instruments, appliances and other historical objects, also pictures, sculpture, early manuscripts and printed books, etc., illustrating the evolution and practice of medicine, surgery and allied sciences throughout the world from prehistoric times, and includes a section dealing with primitive medicine and surgery amongst the savage and semi-civilised peoples of to-day.

One of the central aims of the Museum is to connect the links in the chain of human experience and living things from the very beginning and to trace the genesis of the many branches of the healing art and their development, this undertaking being illustrated by instruments, appliances and other objects connected therewith.

MEMORIAL COLLECTIONS. It is an important feature in the plans of this Museum to preserve the relics and other objects, manuscripts, drawings, etc., associated with workers who have made history by their discoveries, inventions and improvements in the various departments of medicine and allied sciences. It is the special aim and purpose to hand down to posterity the names and records of pioneers who, in the course of time, might be forgotten,



HALL OF STATUARY AT THE WELLCOME HISTORICAL MEDICAL MUSEUM, LONDON (ENG.)
Before construction of the new Research Institution Building

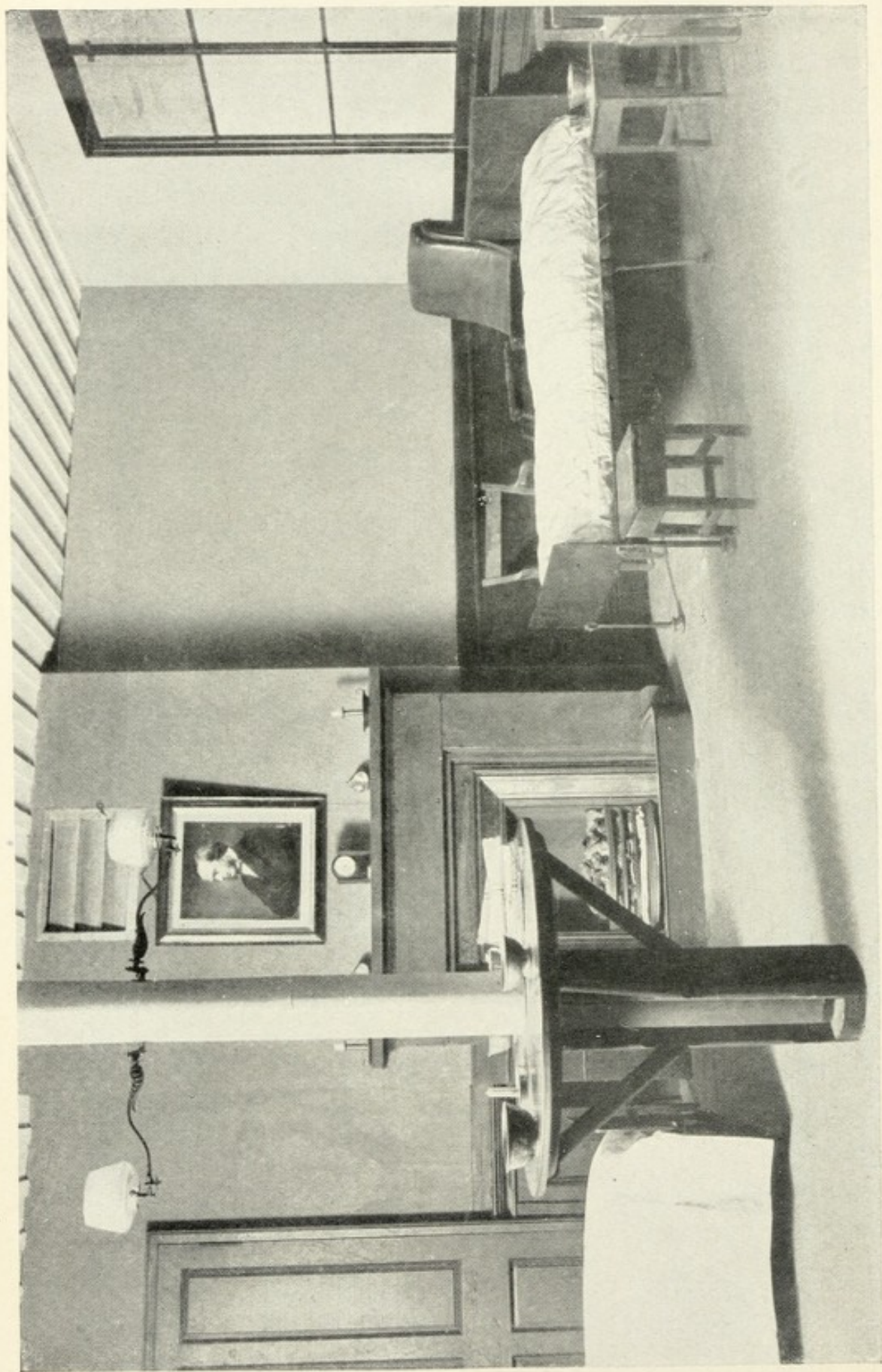
thus rendering honour to whom honour is due. Such relics, etc., when placed in this Museum, form a permanent memorial and tribute to the work and achievements of those who have distinguished themselves in various realms of science in past years.

Many of these collections have been presented to the Museum by the families, executors, friends and admirers of such workers. Gifts or loans of this description will always receive the greatest possible care and be permanently preserved. Special Sections are devoted to such MEMORIAL COLLECTIONS. Amongst these collections are the following :—

The JENNER COLLECTION. An extensive collection of manuscripts, paintings, sculpture, drawings, instruments, personal relics, etc., of Dr. EDWARD JENNER, connected with his development of vaccine treatment of smallpox.

THE LISTER COLLECTION. An extensive collection of appliances, chemical reagents and apparatus, and various other materials originated and used by LORD LISTER in the development of his methods of antiseptic surgery, as practised by him in the Lister Ward of the GLASGOW INFIRMARY and elsewhere. A section of the actual ORIGINAL LISTER WARD, transferred from the Glasgow Infirmary when it was dismantled, is now erected in The Wellcome Museum, together with the fittings and equipment (all being the original material), including Lister's portable experimental research laboratory containing the remainders of his reagents with which he carried out his original antiseptic experiments.

The importance of Museums as an integral part of teaching is now being more fully recognised by physicians



A SECTION OF THE ORIGINAL LISTER WARD NOW AT THE WELLCOME HISTORICAL MEDICAL MUSEUM
183, EUSTON ROAD, LONDON (ENG.)

and surgeons. By practical, scientific classification and systematic grouping of objects, it is the aim and purpose to make The Wellcome Historical Medical Museum of distinct educational value to research workers, students and others interested in the subjects with which it deals.

PUBLICATIONS

DE ARTE PHISICALI ET DE CIRURGIA of Master John Arderne, Surgeon of Newark, dated 1412. Translated by Sir D'Arcy Power, K.B.E.

MAGISTRI SALERNITANI NONDUM COGNITI: A Contribution to the History of the Medical School of Salerno, by Doctor Pietro Capparoni.

THE ICONOGRAPHY OF ANDREAS VESALIUS, Anatomist and Physician. 1514-1564. By M. H. Spielmann, F.S.A.

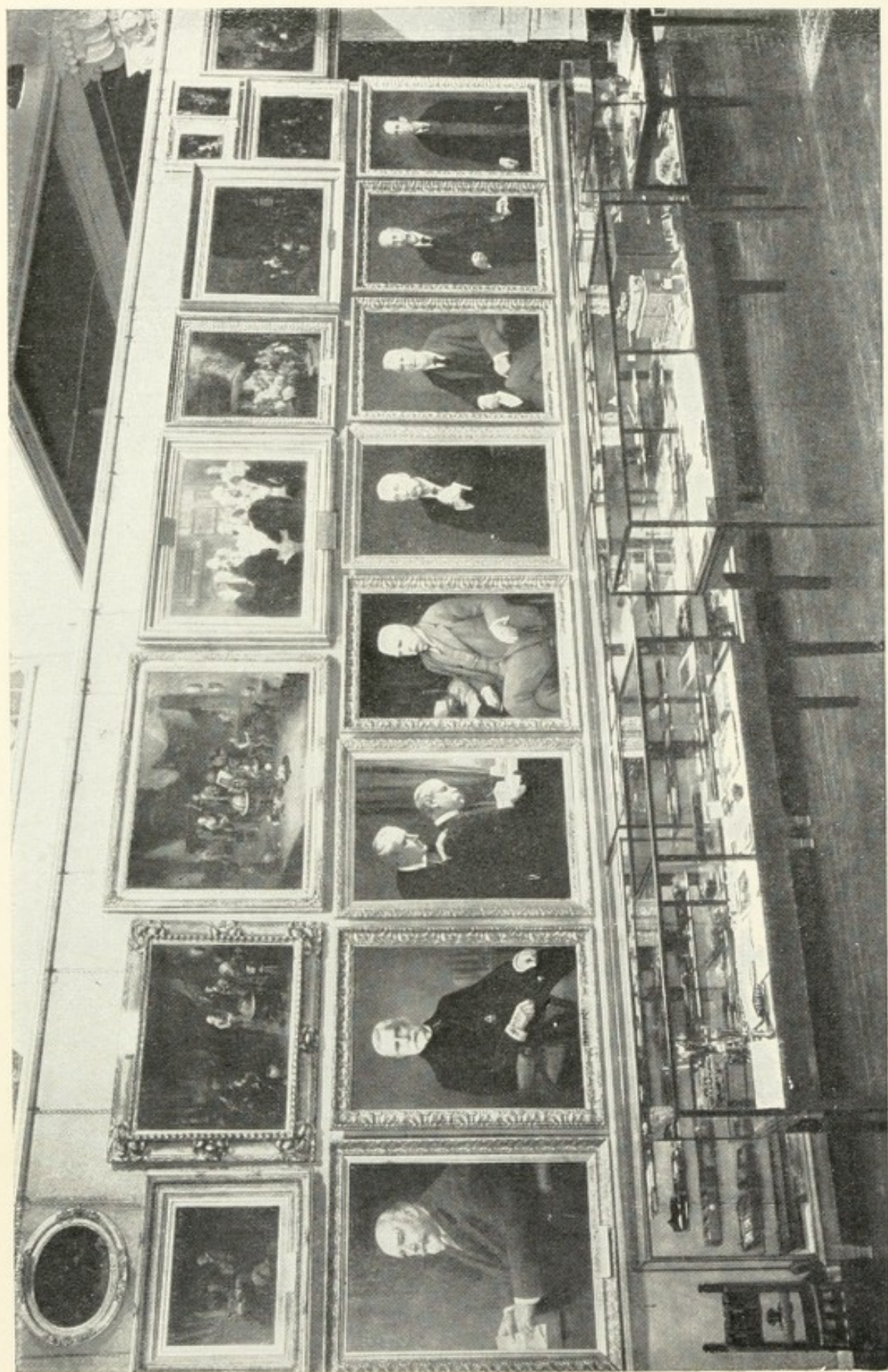
THE LISTER CENTENARY EXHIBITION, 1927, SOUVENIR AND HANDBOOK OF. To commemorate Lister's discovery of antiseptis.

THE HICKMAN CENTENARY EXHIBITION, 1930, SOUVENIR AND HANDBOOK OF. To commemorate Hickman's discovery of the principles of anæsthesia.

HISTORY OF SCOTTISH MEDICINE. By John D. Comrie, M.A., B.Sc., M.D., F.R.C.P., Lecturer on History of Medicine in the University of Edinburgh.

CINCHONA TERCENTENARY CELEBRATION AND EXHIBITION, SOUVENIR OF, 1930.

Etc., Etc.



SECTION OF PORTRAIT GALLERY AT THE WELLCOME HISTORICAL MEDICAL MUSEUM
LONDON (ENG.)

Before construction of the new Research Institution Building

NOTABLE EXHIBITS FROM
THE WELLCOME
HISTORICAL MEDICAL MUSEUM
AT THE
CHICAGO EXPOSITION, 1933

GROUP F—BOOTH 10

DIORAMAS, ACTION PICTURES, PORTRAITS, HISTORICO-MEDICAL EXHIBITS, ETC.

The main plan of the exhibits provided by this Research Museum is to illustrate specific events in British medical and surgical history.

DIORAMAS

- 1-3. The origination and development of anæsthesia.
Hickman (1824), Simpson (1847), Liston (1847).
- 4, 5. The origination and development of antiseptic surgery. Lister (1867), Watson Cheyne (1880).
6. The origination of scientific vaccination—Jenner (1796).
7. Origination of quarantine (Early XIXth Century).
- 8, 9. Revolution in hospital and nursing practice—Florence Nightingale (1854).
10. Electricity and Medical Practice—Michael Faraday (1831).
11. Radiography—Sir William Crookes (1875).
12. Pioneer Tropical Medicine—Sir Patrick Manson (1877).

ACTION PICTURES

1. Anglo-Saxon Surgery.
2. Anglo-Norman Medicine.
3. Roger Bacon (1266).
4. John Banister delivering the Visceral Lecture (1581).
5. William Gilbert demonstrating the magnet to Queen Elizabeth (1598).
6. Harvey demonstrating circulation of blood to Charles I.
7. Wren demonstrating intravenous injection (1656).
8. Priestley — discoverer of dephlogisticated air (oxygen). Threatened by mob (1791).
9. Jenner's first vaccination (1796).
10. Lord Kelvin—conservation of energy (1852).
11. Sir William Perkin—discovery of aniline dye (1856).
12. Sir William Osler, Regius Professor of Medicine, University of Oxford.

PORTRAITS

British leaders in Medicine and Surgery during the past hundred years :—

JOHN BELL (1763–1820).—One of the most skilful surgeons of his generation.

SIR ASTLEY PASTON COOPER (1768–1841).—Master in the surgery of hernia, fractures and dislocations.

THOMAS YOUNG (1773–1829).—Father of physiological optics.

SIR CHARLES BELL (1774–1842).—Surgeon, physiologist, neurologist. Discovered Bell's nerve (1829).

SIR HUMPHRY DAVY (1778-1829).—Discovered anæsthetic properties of nitrous oxide (1799).

GEORGE JAMES GUTHRIE (1785-1856).—Leading surgeon in Napoleonic wars.

JOSEPH HODGSON (1788-1869).—First to describe Hodgson's disease (1815).

RICHARD BRIGHT (1789-1858).—Brilliant research worker. His name is associated with "Bright's disease" (1827).

THOMAS ADDISON (1793-1860).—First to employ static electricity in spasmodic disease (1837). His name is associated with "Addison's disease" (1849).

ROBERT LISTON (1794-1847).—Brilliant British surgeon. First to employ ether as an anæsthetic in England (1846).

ROBERT JAMES GRAVES (1796-1853).—Founder of Park Street School of Medicine, Dublin (1821).

SIR ROBERT CHRISTISON (1797-1882).—Pioneer of scientific toxicology.

JAMES SYME (1799-1870).—One of the first to employ anæsthetic ether in Europe (1847) and to adopt Lister's antiseptic methods.

SIR EDWIN CHADWICK (1800-1890).—Father of modern Sanitary Science in Great Britain.

SIR RICHARD OWEN (1804-1892).—Conservator of Royal College of Surgeons Museum. First to describe *Trichina spiralis*, etc. (1835).

WILLIAM FARR (1807-1883).—Inventor of Farr's Law (1866).

SIR WILLIAM FERGUSSON (1808-1877).—Founder of conservative surgery.

CHARLES ROBERT DARWIN (1809-1882).—Pioneer of general biology, comparative physiology and pathology. Established theory of evolution (1838).

SIR JAMES YOUNG SIMPSON (1811-1870).—First to use chloroform in midwifery (1847). Introduced acupuncture (1850-1864), the uterine sound (1843), etc.

SIR JAMES PAGET (1814-1899).—Pioneered research on tumours, clinically and microscopically (1851).

SIR WILLIAM JENNER (1815-1898).—Physician. Specialist in respiratory and skin diseases, fevers and rickets. Distinguished typhus from typhoid fever (1847).

SIR WILLIAM GULL (1816-1890).—Physician. Made many important contributions to medical knowledge, particularly in respect to locomotor ataxia (1856-1858), intermittent hæmoglobinuria (1866), myxœdema (1873), and nervous disorders (1852).

SIR JOHN SIMON (1816-1904).—Epidemiologist. One of the foremost sanitarians of the nineteenth century.

SIR THOMAS SPENCER WELLS (1818-1897).—Gynæcologist. Standardised the operative technique for ovariectomy (1858-1864).

EDMUND A. PARKES (1819-1876).—Epidemiologist. Occupied first chair of Hygiene in British Army Medical School, 1860.

FLORENCE NIGHTINGALE (1820-1910).—Pioneer of modern nursing.

SIR SAMUEL WILKS (1824-1911).—Physician. Made many contributions to medical knowledge, particularly in regard to Bright's, Addison's and Hodgkin's diseases. Introduced the term "enteric fever."

- THOMAS HENRY HUXLEY (1825-1895).—Protagonist of Charles Darwin. Contributed greatly to scientific knowledge by researches and biological discoveries.
- SIR ANDREW CLARK (1826-1893). Physician. Specialised in the study of the respiratory and digestive systems and made many valuable contributions in the fields of medicine associated with them.
- LORD LISTER (1827-1912).—Surgeon. Founder of antiseptic surgery (1867).
- SIR BENJAMIN WARD RICHARDSON (1828-1896).—Physician and medical historian. Specialised in public health and dietetics ; published researches on alcoholism.
- SIR JONATHAN HUTCHINSON (1828-1913).—One of the most versatile surgeons of the nineteenth century. President of five of the most important Medical Societies in London. Brilliant diagnostician, especially in surgery, ophthalmology, dermatology and syphilis. Discovered syndromes.
- GEORGE H. HARLEY (1829-1896). Physician. Made intensive researches on functions of kidneys, liver and digestive system. Received world-wide recognition for his researches on pepsin. Appointed, at age of 26, first Professor of Practical Physiology in England at University College, London. Invented the Harleian binocular microscope (*ca.* 1870).
- SIR THOMAS CLIFFORD ALLBUTT (1836-1925).—Regius Professor of Physic, University of Cambridge. Made many valuable contributions on circulation of blood (1915). Literary stylist.
- SIR DAVID FERRIER (1843-1928).—Surgeon. Re-charted cerebral areas (1872-1876) ; recognised as expert on brain functions.

- ROBERT LAWSON TAIT (1845-1899).—Gynæcologist. Distinguished surgeon; introduced hepatotomy (1880) and many valuable obstetric aids.
- SIR WILLIAM RICHARD GOWERS (1845-1915).—One of the founders of neurology. Distinguished by his work on minute anatomy of nervous system. Invented the hæmoglobinometer (1878).
- SIR THOMAS LAUDER BRUNTON (1844-1916).—Distinguished physiologist and pharmacologist. Specialised in cardiac effect of therapeutic agents.
- SIR JAMES MACKENZIE (1853-1925).—Pioneer in graphic study of cardiac disorders. Invented the polygraph (1892).
- SIR ROBERT JONES (1855-1933).—Leading authority of British and American orthopædic services during the Great War.
- SIR WILLIAM J. R. SIMPSON (1855-1931).—One of the world's leading authorities on tropical medicine and hygiene. Member of Government Commission (1900) to investigate tropical disease, also of the Yellow Fever Commission, West Africa; of the Enteric Fever Commission, South Africa; and of other Commissions to Hongkong, East Africa, the Gold Coast and South Africa.
- SIR VICTOR HORSLEY (1857-1916).—Pioneer in experimental and neurological surgery.
- SIR FREDERICK N. MOTT (1859-1926).—Neurologist. Authority on degeneration of the neuron (1900), and "shell-shock."
- SIR NORMAN MOORE (1847-1922).—Physician. Leader in the history of medicine. Research worker and writer on clinical medicine.

SIR JAMES CANTLIE (1851-1926).—Surgeon. Prime mover in organisation of London School of Tropical Medicine (1897). Specially interested in ambulance and Red Cross work. Founded the College of Ambulance (1914).

SIR HENRY MORRIS (1844-1926).—Surgeon. In addition to his work as teacher in Practical Surgery at Middlesex Hospital, he was known as a medical educationalist.

J. EVERETT DUTTON (1874-1905).—In 1901 discovered *Trypanosoma gambiense* in the blood of man. It was afterwards shown that the tsetse fly is the vector of the disease, and that Gambia fever, discovered by Dutton and Todd in 1902, and sleeping sickness are two stages of the same infection.

SIR ANDREW BALFOUR (1873-1931).—Pioneer in Tropical Medicine and Research. Director of The Wellcome Tropical Research Laboratories, Khartoum, Africa, later of The Wellcome Bureau of Scientific Research, and finally of The London School of Hygiene and Tropical Medicine.

HISTORICO-MEDICAL EXHIBITS

AN EXHIBITION CASE containing examples of Historical Surgical Instruments from the days of the flint knife to the XVIIIth century.

AN EXHIBITION CASE containing a selected series of Pharmaceutical products from antiquity to the present time.

MEDICAL MAP OF LONDON (1832-1932) and statistics showing the growth of the Public Health Services in London over 100 years.

LEADING MEDICAL INSTITUTIONS IN LONDON.

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1933

