The Wellcome Museum of Medical Science.

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THE WELLCOME MUSEUM OF MEDICAL SCIENCE

THE WELLCOME FOUNDATION LIMITED

THE WELLCOME BUILDING

EUSTON ROAD, LONDON, N.W.1

PREFACE

THE WELLCOME MUSEUM OF MEDICAL SCIENCE is one of the special activities maintained by the Wellcome Foundation Limited. The position of this Company is unique in the pharmaceutical industry. It had its origin in a partnership set up in 1880 by Silas M. Burroughs and Henry S. Wellcome under the style of Burroughs Wellcome & Co. to manufacture and sell pharmaceuticals. Following the early death of Burroughs, Wellcome became sole owner and he devoted much of his later life to setting up museums and libraries which were maintained from the profits of the business. He eventually consolidated his many interests in Great Britain and overseas, including this Museum, into one organization which was registered under the name of The Wellcome Foundation Limited. On his death all the shares in that Company were vested in a body of trustees known as the Wellcome Trust. As sole shareholders in The Foundation the trustees are directed under Wellcome's will to use the distributed profits which they receive as dividends from The Wellcome Foundation Limited for purposes which can be defined broadly as the advancement of research in medical and allied sciences.

MICHAEL W. PERRIN
Chairman
Wellcome Foundation Limited

The entrance to the Museum. The first screen carries an introduction and an index. The protozoology section follows immediately afterwards.

INTRODUCTION

THE WELLCOME MUSEUM OF MEDICAL SCIENCE deals largely, but not entirely, with the subject of communicable disease in man, specially emphasizing conditions of importance in hot climates. The methods of presentation differ in several respects from those of the traditional medical museum, and the displays are primarily intended for medical men about to go abroad and overseas practitioners who visit this country to study. Although the standard is post-graduate, nurses and medical auxiliaries frequently use the Museum, and teachers, especially of biology, also find much to interest them.

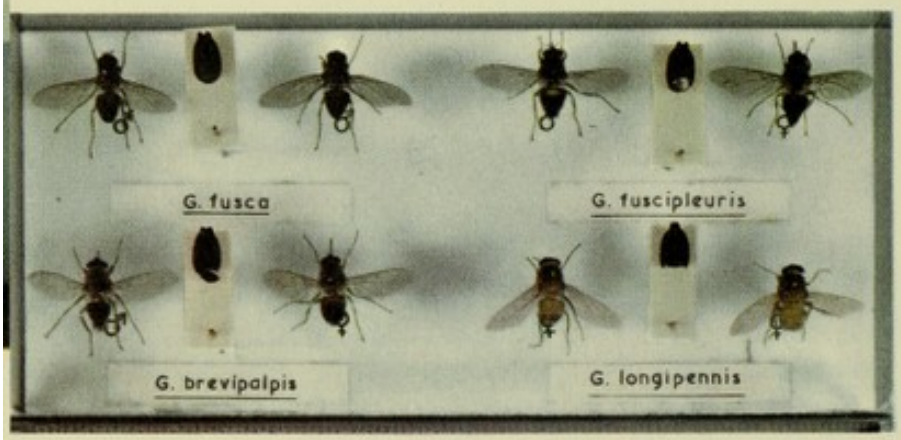
When the Museum was founded in 1914 by Sir Henry Wellcome, it was then specially designed to foster interest in tropical medicine. Later it was expanded to cover every aspect of medicine, and it remained on this wider basis until it was reorganized after the second world war. At that time it was decided that the Museum should concentrate on diseases encountered in medical practice in tropical and sub-tropical areas. It is now generally accepted that the earlier conception of tropical medicine as a special discipline has to be broadened to incorporate knowledge which is fundamental to the practice of medicine in all countries.

Several basic principles govern display in all parts of the Museum. Its two long galleries are broken up by screens into a number of rectangular bays. Each bay is arranged as a complete study unit within which a student may work in comfort and reasonable freedom from distraction. These bays are the primary components of the Museum. Most of their information is contained in concise summaries placed on vertical panels attached to the screens. These summaries are prepared with the advice of experts, and are illustrated by photographs, charts, maps and diagrams. The information in each bay is supplemented and kept up to date by extracts from

medical journals contained in a folder designed for the purpose. Each bay thus presents visual material designed to give a clear and balanced account of modern knowledge relating to one or more specific conditions.

Each subject is considered under nine headings arranged in logical sequence, each of which carries an informative colour motif which is repeated throughout the Museum. General introductory accounts, for example, are associated with brown, pathology with red and treatment with green, while the background is a shade of grey.

Thirteen bays in the Museum are devoted to protozoal diseases. In the sleeping sickness section, the basic method of presentation is supported by some special features. There are two horizontal panels, one of which presents a diagram of the epidemiological complex while the other suggests a space-time relationship in the clinical



LEFT: *Part of a collection of tsetse flies which are mounted under a magnifying device to facilitate recognition.*

BELOW: *The first of two bays concerned with African sleeping sickness. A horizontal panel depicts the factors involved in the transmission of this infection.*

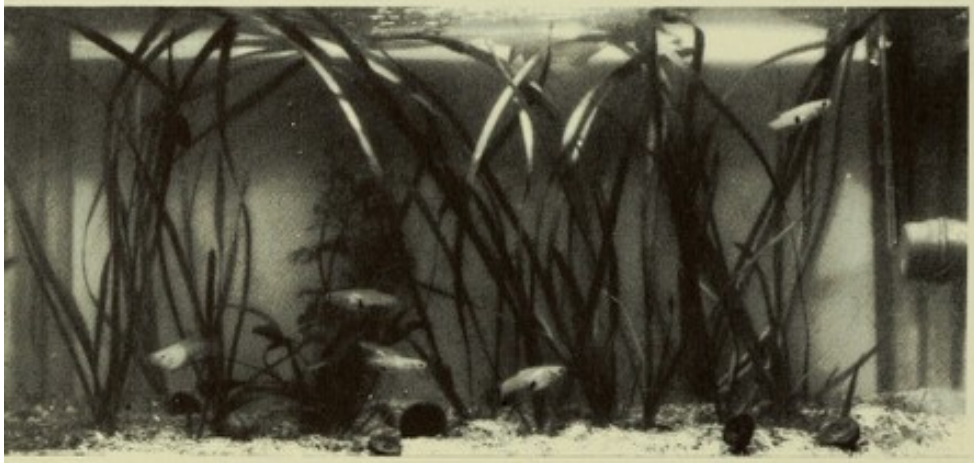
Swinging panels in the sleeping sickness section. Terzi's paintings provide a colourful background for an account of tsetse flies.

evolution of the disease. Swinging panels afford useful means for the display of details of entomology and chemotherapy, which would unduly lengthen the main account if shown there.

On account of its special tropical importance, malaria is allotted six bays in a section set apart from the other protozoal infections. A magnifying device enables the external morphology of species of *Anopheles* to be compared.

The section of bacterial diseases, situated at the intersection of the two long galleries, includes accounts of leprosy and tuberculosis. Here, a cul-de-sac has been given fresh interest by a geometrical arrangement of screens and panels. Until recently, leprosy dominated this section; its partner tuberculosis now has an equal share of the available space. Present trends suggest that it will not be long before leprosy is reduced still further in relative importance. These changes

ABOVE: *The first bay of the malaria section which begins with a description of important experimental studies.*



LEFT: *Living* Gambusia *displayed in the malaria section. These larvivorous fish are used in mosquito control.*

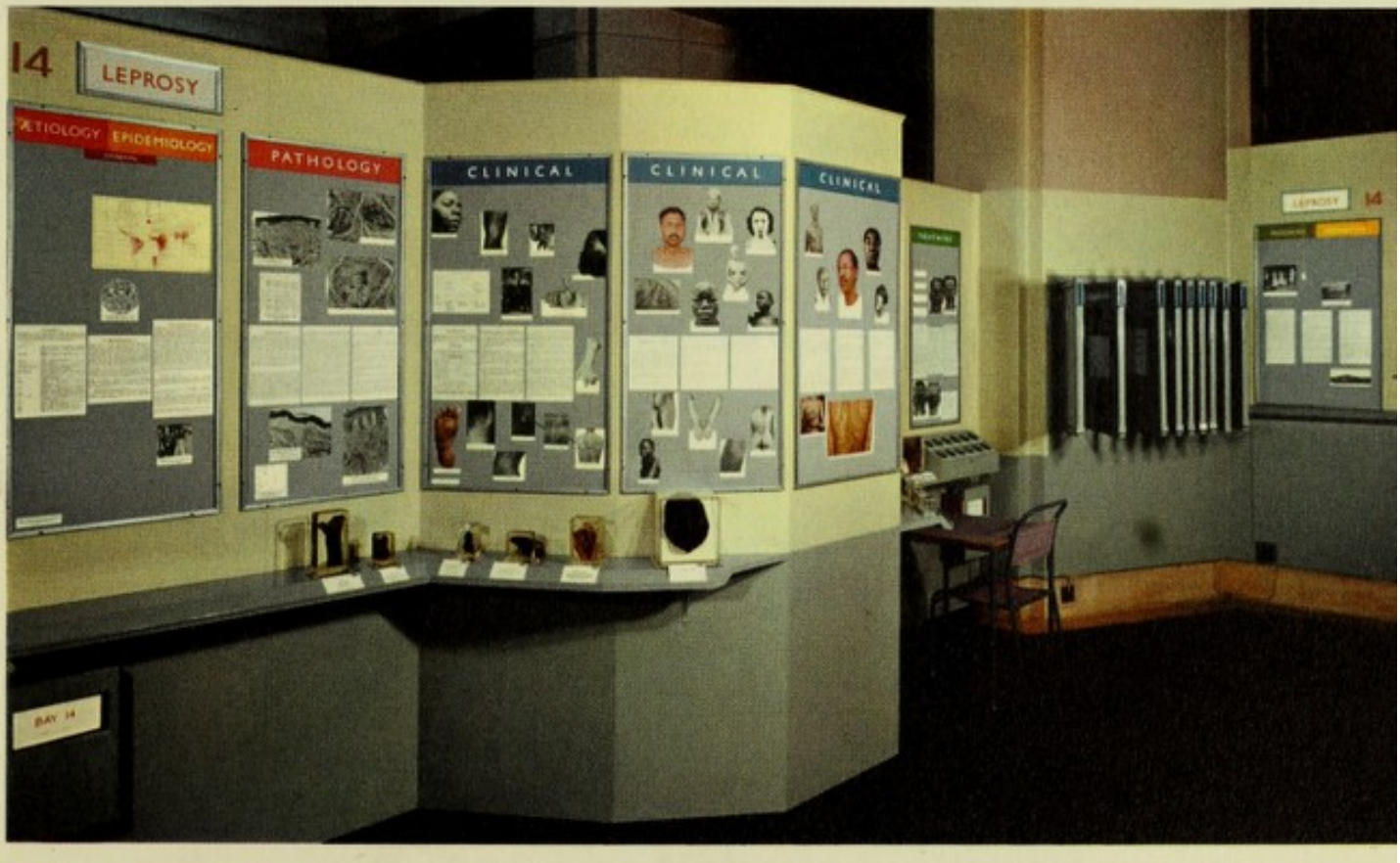
will be reflected in the Museum, where the surge and decline of communicable disease among tropical peoples is constantly under review.

Nine bays in the east gallery are devoted to helminthology, with accounts of the diseases caused by trematodes, cestodes and nematodes. A large amount of space is taken up by schistosomiasis, an infestation of more than a hundred million people. Here, complex

details of pathology are illustrated with the aid of much autopsy material. Pathological specimens are mounted in cases of Perspex, which has numerous advantages over glass for this purpose. Each container is constructed to accommodate a particular specimen, and students are encouraged to handle these exhibits.

Many of the drugs mentioned in accounts of treatment are on display. This is of special value to the practitioner who is about to embark upon a career overseas, since it enables him to become acquainted, possibly for the first time, with both the appearance and the names of substances which he will later want to prescribe. In the hookworm section, a display of anthelmintics prepared in capsular form shows how closely one drug may resemble another used for the treatment of the same condition.

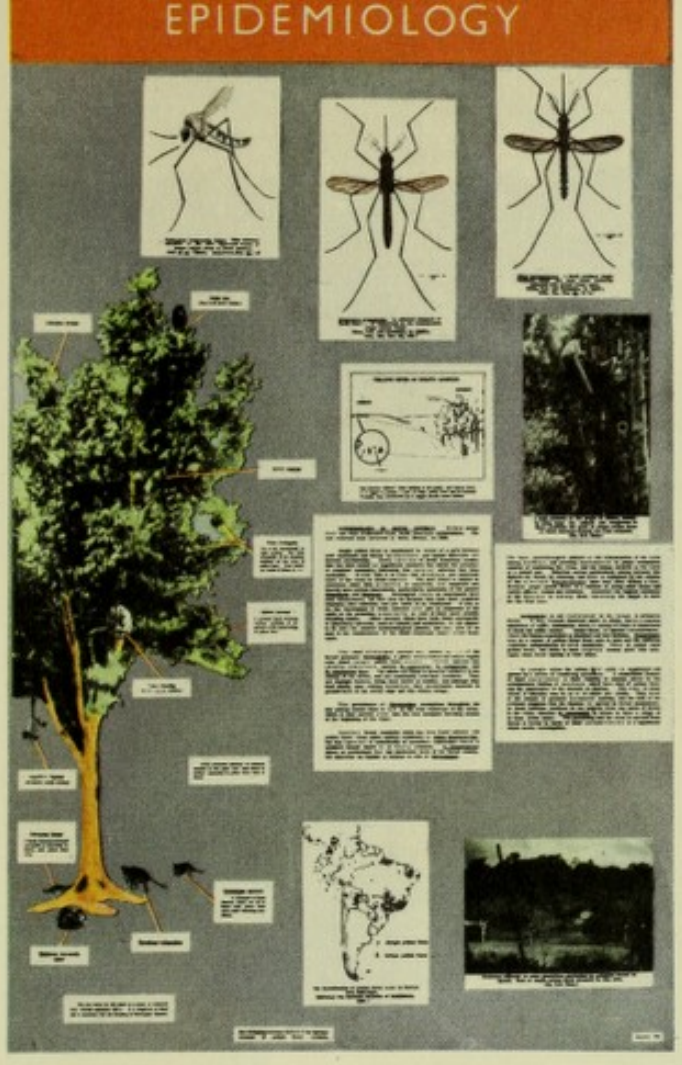
The linear expanse of the leprosy section is broken by a five-sided figure, increasing the display area. A similar section is devoted to tuberculosis.



ABOVE: *One of the bays dealing with schistosomiasis. Students have pathological material at hand to illustrate the written descriptions of this disease. Its effects upon human tissues are highly characteristic.*

LEFT: *A calculus formed of triple phosphates, weighing 240 grammes, removed from the bladder of a patient suffering from schistosomiasis. One of many interesting exhibits in the section.*

BELOW: *A selection from the Museum collection of zoological specimens of medical importance in the tropics. Emphasis is laid upon the effects of snake bite, and the importance of small mammals as vectors of human disease.*



LEFT: *A panel devoted to a description of the epidemiology of yellow fever in South America. The carapa tree of the Brazilian forest is depicted in shallow relief.*

RIGHT: *Many important aspects of yellow fever are emphasized in the Museum, which specializes in tropical diseases.*

The virus diseases occupy a succession of bays stretching westwards from the portico of the south gallery. Although practically all the human pathogenic viruses are mentioned, those responsible for tropical disorders receive special emphasis. The epidemiology of South American jungle yellow fever is shown on a panel whose centrepiece depicts in shallow relief a tree indigenous to Brazilian forests. Questions set at recent examinations are collected within folders in each bay of the Museum and the frequency with which problems relating to yellow fever appear in these tests shows the importance which has been attached in recent years to this subject.

The panel showing the pellagra syndrome forms a focal point in the section dealing with nutrition and malnutrition in tropical countries.

Beyond the virus diseases, at the present limit of the south gallery, are new sections on nutrition and malnutrition. These somewhat discursive subjects required elasticity of approach, as in the unusually large panel devoted to pellagra, the focal point of the west wall.

ABOVE: *The typhus fevers are displayed in three consecutive bays, and are arranged according to the insect vectors.*

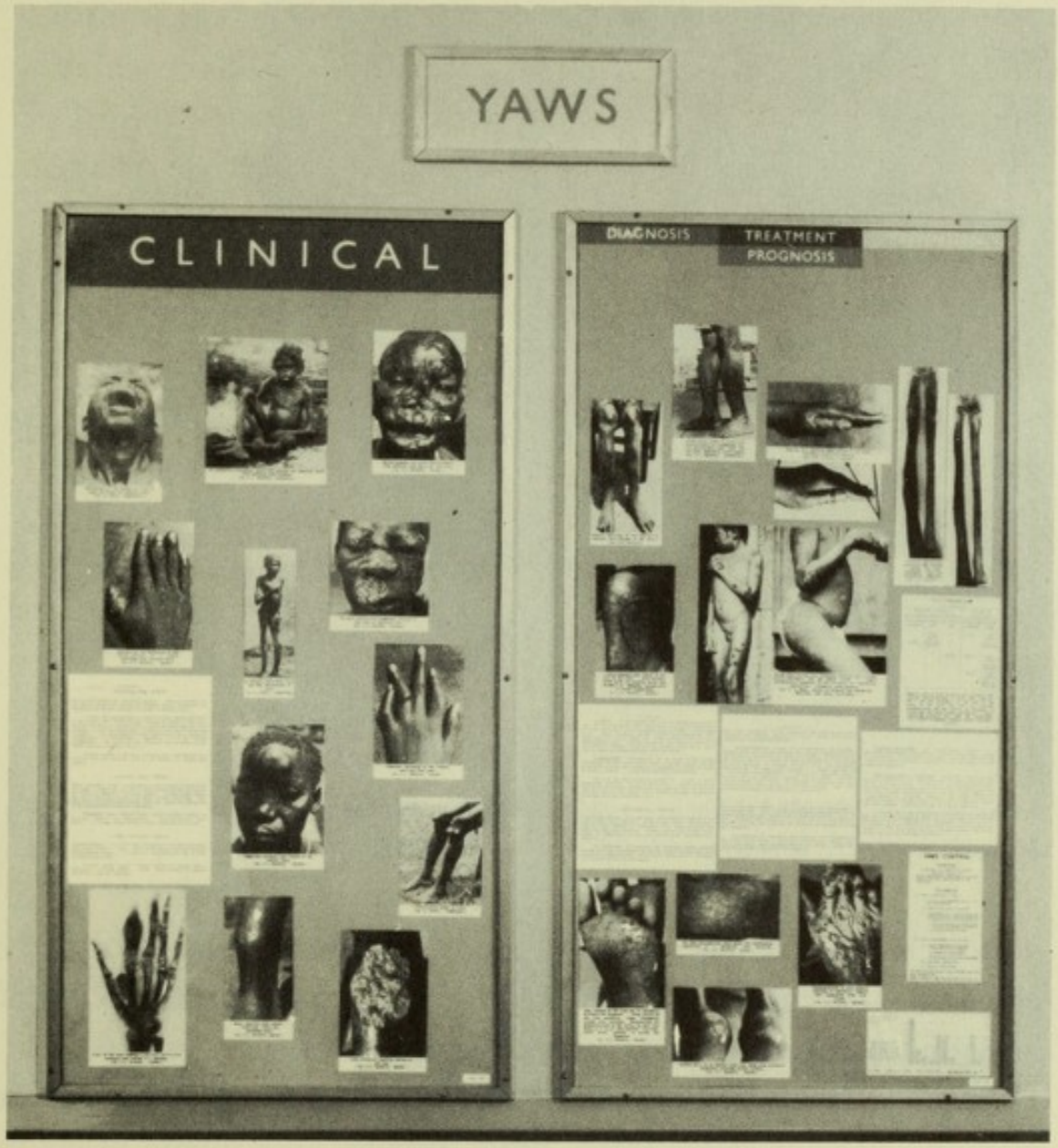
BELOW: *Stages in the life-cycle of the Lone Star tick, mounted in solid Perspex.*

The introduction of a selection of haematological subjects indicates a fresh response to the widening scope of tropical medicine. As in many other bays, the collection of coloured photomicrographs here provides a valuable aid to visual teaching. The fruits of prolonged microscopic search can be displayed in this way at the flick of a switch.

The virus diseases are linked to the bacteria by a display of rickettsial infections. The arthropod vectors of these conditions are all mounted in solid plastic. This technique, which is not by any means suitable for all specimens, can be put to good account in the presentation of wingless and resilient insects which are not distorted by the mounting procedure.

A section devoted to pathogenic fungi, largely due to the contribution of an overseas professor, presents a formidable and complex

A section devoted to fungus diseases of viscera and skin provides one of the many interesting and colourful displays in the Museum.



Yaws, an important tropical disease, is considered among the section on spirochaetal infections.

subject with clarity and conciseness. The arrangement enables the fungus diseases of the Americas to be grouped together in an appropriate sequence.

Spirochaetal infections are displayed in three bays, one of which is devoted to the treponematoses. An illuminated radiograph here exemplifies the effects of tertiary yaws on the bony system. A revision

A wax model of a female Anopheles gambiae *enlarged twenty-eight times and showing much taxonomic detail. One of many models displayed in the Museum.*

of this section in 1956 halved the allocation of space formerly given to these conditions – an indication of the diminishing clinical importance during recent years of these diseases.

Arthropods of major medical importance, modelled in wax at magnifications of about thirty times, occupy appropriate places in the Museum. In creating these models Miss Edwards attained a striking combination of taxonomic integrity and artistic finesse. The Museum displays are greatly enhanced by Miss Jackson's clinical paintings, the landscape miniatures of Schwarz-Lenoir, and the splendid detail of Terzi's entomological pictures. These, with the work of other artists, are to be found throughout the Museum, and bring some charm and colour to the fascinating study of man's long struggle against disease.

Visitors to the Museum include students who spend many weeks working steadily from bay to bay, allowing nothing to pass unchallenged. Many of them are specialists in their own fields of medicine, and make valuable suggestions for improving the standard of presentation. Senior students of this type quickly appreciate that the Museum *display* is but one expression of the activities of the Museum *organization*; this organization not only provides an exhibition, but collects and sifts and records information for visitors and students all over the world.

But when all is said and done the Museum must speak for itself. It is hoped that therein will be found conformity without tedium, exactitude without restraint and tidiness without rigidity.

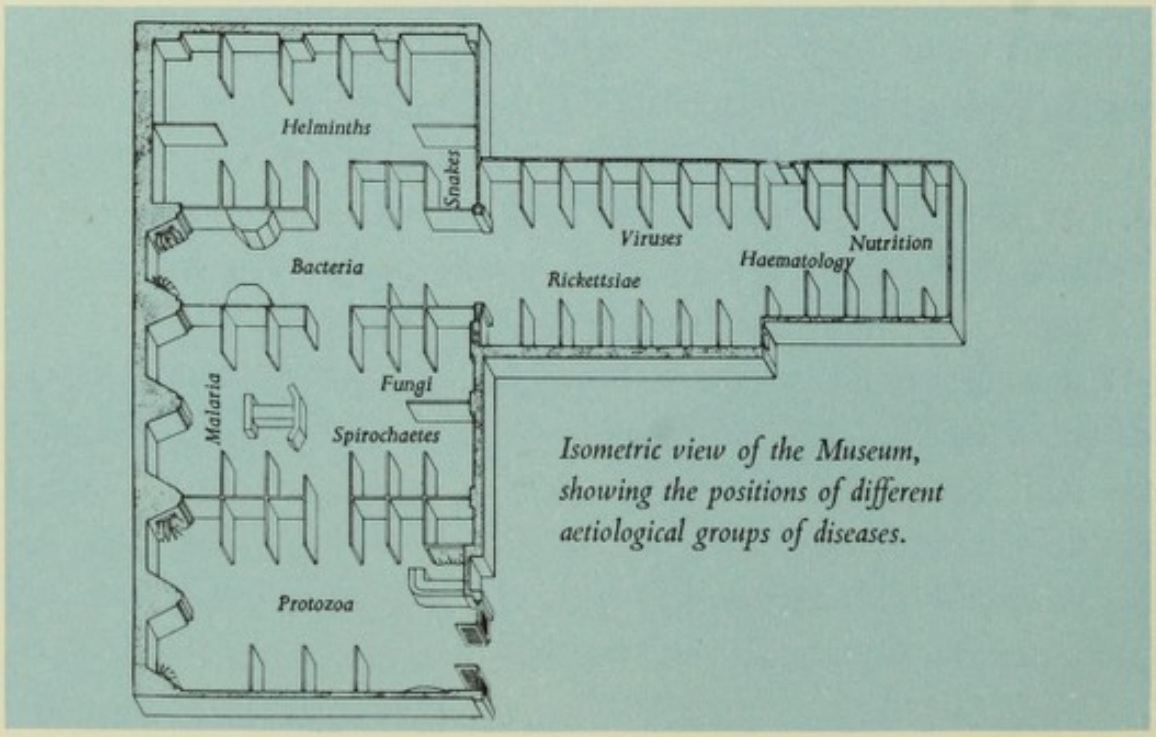
SUBJECTS ON EXHIBITION

WITH VERY FEW EXCEPTIONS the diseases considered in the Museum are grouped together according to their aetiology. Hence bacteriological and other causal agents provide the basis of the main subdivisions of the exhibition.

The following list gives the subjects as they are usually encountered by visitors during a tour of the Museum. In many cases the sequence is self-explanatory; otherwise a note is added to explain the reason for the arrangement.

Bay numbers are not given, because rearrangements are continually taking place in response to the ever-changing pattern of infectious disease throughout the world. Full indices with bay numbers are prominently placed in the Museum itself.

The number of panels allotted to the different subjects indicates the relative importance of each display, special weight being given to tropical diseases. Most sections have an introductory account of varying length.



Isometric view of the Museum, showing the positions of different aetiological groups of diseases.

PROTOZOAL DISEASES

DISEASES DUE TO PROTOZOA, or unicellular organisms, provide a convenient starting point for a museum which specializes in tropical diseases. The first two bays are devoted to the parasitic amoebae – simple biological forms varying considerably in their adaptation to the human environment. Subsequently, the ciliates are considered, followed by the haemoflagellates and the most important of the blood parasites, *Plasmodium*, the agent of malaria.

Amoebiasis	8 panels	Rhizopoda of the alimentary tract
Non-pathogenic coprozoic protozoa	2 panels	
Balantidiasis	1 panel	Other Protozoa inhabiting the intestine
Coccidiosis and Sarcosporidiosis	1 panel	
Trichomoniasis	1 panel	
Toxoplasmosis	3 panels	
Leishmaniasis	9 panels	There are also 4 swinging panels on *Phlebotomus* in this section
Introduction to Trypanosomes	3 panels	
African Trypanosomiasis	11 panels	There are also 3 swinging panels on chemotherapy and 6 on *Glossina* in this section
American Trypanosomiasis	8 panels	This section includes 1 panel on *T. rangeli*
Malaria	48 panels	The malaria section has its own display area, apart from the other protozoal diseases

BACTERIAL DISEASES

OWING TO LIMITATIONS OF SPACE it has been necessary to select only those bacterial infections which are of major importance in tropical countries. Leprosy and tuberculosis occupy an outstanding place; the common venereal diseases are all considered. Of special importance are those infections which reflect inadequate environmental hygiene – cholera, typhoid, bacillary dysentery, brucellosis and bacterial food poisoning. Plague provides a classic study in epidemiology, and tularaemia also emphasizes the importance of mammalian reservoirs of human disease. The section on tetanus gives information on a dangerous infection which is encountered in many parts of the world.

Leprosy	10 panels	Plus swinging panels on bacteriology, radiography and other aspects
Tuberculosis	10 panels	
Granuloma venereum	2 panels	Venereal diseases
Chancroid	1 panel	
Gonorrhoea	2 panels	Neisserian infections
Cerebro-spinal meningitis	1 panel	
Cholera	4 panels	
Typhoid	4 panels	
Bacillary dysentery	4 panels	
Bacterial food poisoning	3 panels	
Brucellosis	4 panels	
Tularaemia	1 panel	
Plague	4 panels	Swinging panels given to vectors and reservoirs
Tetanus	2 panels	

HELMINTHIC INFESTATIONS

HUMAN BEINGS infested by worms are to be numbered in hundreds of millions. Very often such infestation produces long-standing debility; sometimes the consequences are lethal to both host and parasite.

After several introductory panels, the trematodes, or flukes, occupy a further three bays. The tapeworms fall naturally into place beside them in virtue of their taxonomic similarities. Lastly, the nematodes are considered – they comprise the most widespread and important group of human parasites in the animal kingdom.

Introduction to helminthic diseases	6 panels	
Schistosomiasis	16 panels	Trematodes
Other trematode infestations	12 panels	
Taenia solium and cysticercosis	4 panels	Cestodes
Taenia echinococcus and hydatid disease	5 panels	
Other cestode infestations	7 panels	
Ancylostomiasis	4 panels	Nematodes
Ascariasis	3 panels	
Other intestinal nematodes	7 panels	
Bancroftian filariasis	11 panels	
Onchocerciasis	4 panels	
Loiasis	2 panels	
Other nematodes	8 panels	

VIRUS DISEASES

VIRUSES ARE THE SMALLEST LIVING PARTICLES, and are impossible to discern with an ordinary microscope though they can be photographed by means of the electron microscope. They are responsible for many cosmopolitan diseases, some grave and others trivial. Many viruses have been studied by serological techniques which enable them to be distinguished and identified.

No classification of the pathogenic viruses has yet furnished unequivocal grounds for grouping virus diseases according to the relationships of their causal agents. The sequence followed in the Museum is therefore based upon somewhat *ad hoc* collections of disorders bearing similar clinical or epidemiological patterns.

Introduction to viruses	6 panels	
Classification of Arthropod-borne viruses	1 panel	These viruses are placed at the beginning. They are among the smallest, and are of tropical importance
Yellow fever	6 panels	Arthropod-borne virus infections
Sandfly fever	2 panels	
Dengue fever	3 panels	
Epidemic encephalitides	2 panels	Virus infections of the central nervous system
Encephalitis lethargica	1 panel	
Other encephalitides of viral origin	1 panel	
Rabies	3 panels	
Poliomyelitis	4 panels	
Zoster	1 panel	This condition links the neurotropic viruses with those of the pox group

Varicella	1 panel	The pox group
Variola	3 panels	
Vaccinia	2 panels	
Cow-pox	1 panel	
Herpes	1 panel	Other cutaneous virus infections
Molluscum contagiosum	1 panel	
Warts	1 panel	
Coxsackie virus infections	1 panel	
Influenza	3 panels	Possibly related viruses
Mumps	1 panel	
Measles	2 panels	Childhood illnesses
Rubella	1 panel	
Virus hepatitis	3 panels	
Glandular fever	2 panels	
Common cold	1 panel	Infections of the Respiratory tract
Primary atypical pneumonia	2 panels	
Adenovirus infections	1 panel	Possibly related causal agents
Epidemic keratoconjunctivitis	1 panel	

TROPICAL HAEMATOLOGY

THE CLINICAL IMPORTANCE of blood diseases other than secondary anaemias among tropical peoples has been emphasized by two important lines of research. Studies of the chemistry and genetic inheritance of abnormal forms of haemoglobin have led to valuable discoveries concerning congenital anaemia. The relationship of

megaloblastic anaemia to disturbances of gastro-intestinal function is a matter of common interest to haematologists in temperate and tropical countries.

Megaloblastic anaemias	3 panels	Includes an account of the anaemia of sprue
Secondary anaemias	3 panels	
Tropical eosinophilia	2 panels	
Acquired haemolytic anaemia	5 panels	Includes bartonellosis, black-water fever and favism

NUTRITION

NUTRITION IS NOW RECOGNIZED as the most urgent and fundamental of all medical problems in the tropics today. This section of the Museum is a new attempt to define the more important aspects of this many-sided subject, and present them to the student in their proper perspective. Accounts of the well-known deficiency syndromes are reduced to a minimum, while space is given to fundamental considerations such as agriculture and food production.

General aspects of Nutrition	8 panels
Individual aspects of Nutrition	8 panels
Introduction to Malnutrition	3 panels
Deficiency diseases	8 panels
Vitamin therapy	3 panels
Kwashiorkor	2 panels
Veno-Occlusive disease	1 panel

This section also deals with poisoning due to contaminated or unsuitable diets, such as lathyrism, vomiting sickness and epidemic dropsy. Three panels are allotted to sprue, linking the nutrition and haematology sections.

FUNGUS DISEASES

FOR MANY YEARS the fungus diseases, with the exception of ringworm, were considered to be rare conditions of interest only to dermatologists and tropical practitioners. Newly devised diagnostic techniques have shown how widespread these infections are. Visceral lesions are now known to produce important clinical effects in many parts of the world.

The occasional activation of quiescent fungus infection by antibiotic therapy is another reason for giving prominence to these conditions.

Introduction to Fungi	3 panels	
Mycetomas	4 panels	Includes actinomycosis and maduromycosis
Sporotrichosis	1 panel	
Cryptococcosis	1 panel	
Histoplasmosis	2 panels	
Aspergillosis	1 panel	
Moniliasis	1 panel	
Rhinosporidiosis	1 panel	
Chromoblastomycosis	2 panels	
Coccidioidomycosis	2 panels	Fungus diseases of the Americas
North American blastomycosis	1 panel	
South American blastomycosis	2 panels	
Dermatophytes	2 panels	
Tinea versicolor	1 panel	
Fungus diseases of the hair shaft	2 panels	

INFECTIONS DUE TO LARGE VIRUSES AND RICKETTSIAE

A GROUP OF LARGE VIRUSES, known to certain systematists as the Chlamydozoaceae, is considered immediately after the virus section, and leads straight on to an account of rickettsial infections.

Introduction to Chlamydozoaceae	1 panel	
Psittacosis	2 panels	A clinical link with the viruses last considered
Lymphogranuloma inguinale	3 panels	
Cat-scratch disease	1 panel	
Inclusion conjunctivitis	1 panel	
Trachoma	3 panels	
Introduction to Rickettsiae	2 panels	
Rocky mountain spotted fever	2 panels	The basic clinical type of tick-borne typhus
Other tick-borne typhus fevers	6 panels	These are divided geographically, and their variations from the basic North American pattern are described
Scrub typhus	4 panels	Mite-borne diseases
Rickettsialpox	1 panel	
Louse-borne typhus	5 panels	Louse-borne diseases
Trench fever	1 panel	
Endemic typhus	2 panels	
Q fever	3 panels	A cosmopolitan infection of increasing diagnostic importance

SPIROCHAETAL DISEASES

THE SPIROCHAETAL DISEASES are divided into those caused by treponemes and leptospires. The approach to the syphilis-yaws question which is followed in the Museum supports the unitarian view, although the treponematoses are sub-divided in the orthodox manner. Vincent's angina and tropical ulcer are included in this section because of their association with spirochaetes (which, however, is not necessarily causal.) It is also a convenient point at which to present rat-bite fever, although the aetiological agents of this disease are not spirochaetal.

Introduction to Spirochaetes	2 panels
Yaws	4 panels
Pinta	2 panels
Other non-venereal treponematoses	1 panel
Syphilis	5 panels
Relapsing fever	7 panels
Rat-bite fever	2 panels
Leptospirosis	3 panels
Tropical ulcer	2 panels
Vincent's angina	1 panel

MEDICAL ZOOLOGY

THE MUSEUM CONTAINS ACCOUNTS of venomous snakes and arthropods, the myiasis-producing flies, the jigger flea, and the itch mite. These subjects are of considerable importance in many regions.

Modern investigations into scrub typhus, trypanosomiasis, yellow fever and other infections have shown the epidemiological significance of flora and fauna in man's environment. A collection of small mammals is being assembled to illustrate their importance in the transmission of disease to man.

THE STUDY UNIT

THE MUSEUM HAS IN USE sixty-four study units, each consisting of a bay provided with a table, chair, shelves, a folder, supplementary descriptive material, and panels on which the basic information is laid out. Bays are formed by movable screens and thus vary slightly in number and size according to the demands made on the floor space of each section. Each screen is eight feet (240 cm.) high, and the bays are, on the average, six feet (180 cm.) deep and five feet (150 cm.) wide. Most panels are 42 × 20 inches (105 × 50 cm.) in size, set vertically with the lower edge 44 inches (110 cm.) from the floor. Some panels are 42 × 26 inches (105 × 70 cm.), and a common arrangement is to have three narrow panels on each side of the bay and two wider ones at the back. The system is not inflexible and panels of quite different sizes are used when a particular effect is

A typical corner of the Museum showing bays furnished as complete study-units. These bays introduce the subject of tropical nutrition.

required. The 'eight-panel bay' is, however, standard. Panels are cut from sheets of cardboard and are kept in position by a plain beading screwed to the screen or gallery wall.

Summaries provide concisely-worded accounts of each disease. They are prepared on electric typewriters, and each line is justified to six inches, the right-hand margin being unbroken. Summaries vary in length; three is the maximum number mounted on panels of regular size. They are centred on a horizontal plane sixty inches (150 cm.) from the floor, sixteen inches (40 cm.) from the lower edge of the panel, a height which most easily engages the eye-level of average persons. Summaries are illustrated by charts, maps, pictures and diagrams mounted in appropriate situations. The completed panel is protected by a pane of glass held in position by the beading.

The screens and walls of the bays support shelves for specimens and photomicrographs at a height of thirty-six inches (90 cm.). Most bays are large enough to accommodate shelves on all three sides, if required.

A box attached to one screen carries a folder containing a copy of all the summaries in the bay, and recent extracts from the journals.

MUSEUM TECHNIQUES

THE METHODS OF DISPLAY differ considerably from those of conventional museums, while the choice of material is largely governed by the need to provide clear and up-to-date accounts of disease processes. Nevertheless, many of the problems which have to be overcome are common to all institutions which seek to educate by visual means, and some of the methods adopted will no doubt be of interest to the student of museums, if not to the general reader.

COLOUR

IN MAKING SELECTIONS from the wide range of colour materials which is now available for display purposes, special efforts have been made to develop effects which are in keeping with the scientific atmosphere of alertness and interest.

The lower thirty-six inches (90 cm.) of screens and walls are dark grey, while the upper part is lighter grey. Panels are light grey, and the beading is painted with aluminium. The finish is egg-shell.

Each subject is considered under nine headings, each of which is associated with a dominant colour symbol, as follows:

GENERAL	*Chocolate*
AETIOLOGY	*Puce*
EPIDEMIOLOGY	*Orange*
PATHOLOGY	*Red*
CLINICAL	*Blue*
DIAGNOSIS	*Light Blue*
TREATMENT	*Dark Green*
PROGNOSIS	*Light Green*
PREVENTION	*Yellow*

A panel bearing summaries which come under one or more of these headings carries the appropriate coloured labels. Labels are printed in different sizes according to the purpose for which they are intended.

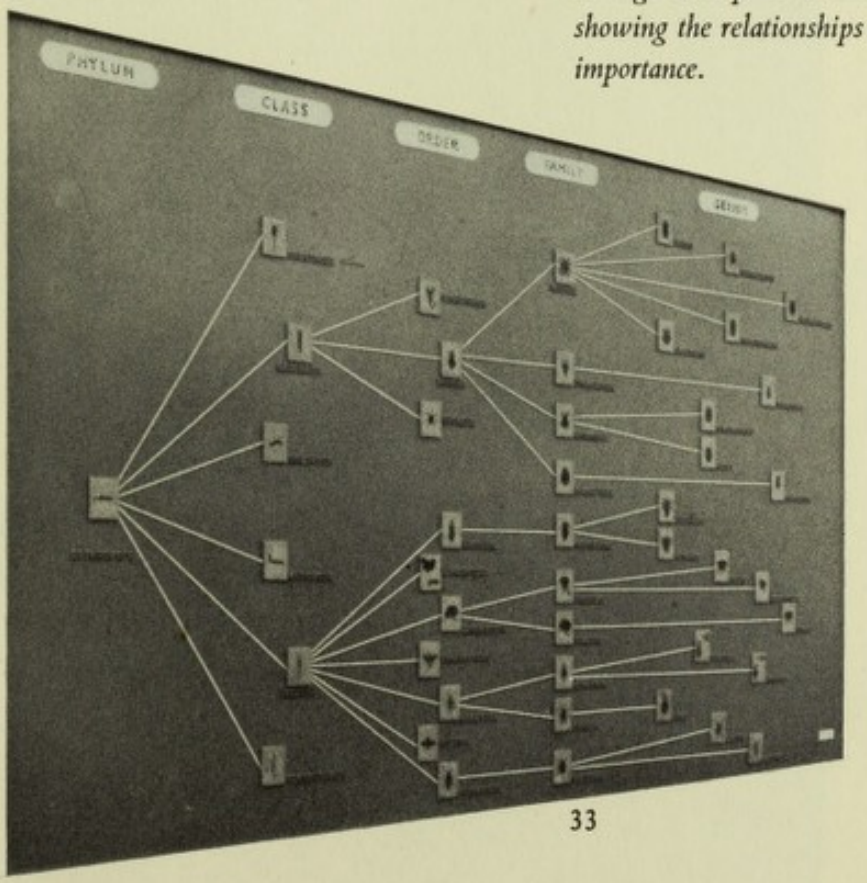
The names of the diseases are displayed outside the panels, above them, and in two-inch (50 cm.) vermilion lettering in their own frames.

CORRIDORS

THE ARRANGEMENT OF BAYS and the matter displayed within them are designed for close study over long periods; displays in corridors are utilized on a different principle. They are laid out on a larger scale, and their subjects are easy to assimilate, with labels and reading matter eliminated as far as possible.

One method of utilizing these screens is to present the zoological relationships of genera within the animal kingdom which are of special interest to medical science. One large panel drawn up in this way not only shows the taxonomy of numerous arthropods, but suggests possible paths of evolution from simple forms to the more specialized types of the medically important genera. For the preparation of this panel a special technique was evolved. The form of each arthropod was silhouetted in black against an orange ground by using cellulose lacquers on squares of Perspex. The phylogeny was indicated by polythene rods.

A large-scale panel situated in one of the corridors, showing the relationships of insects of medical importance.



USE OF ACRYLIC RESINS

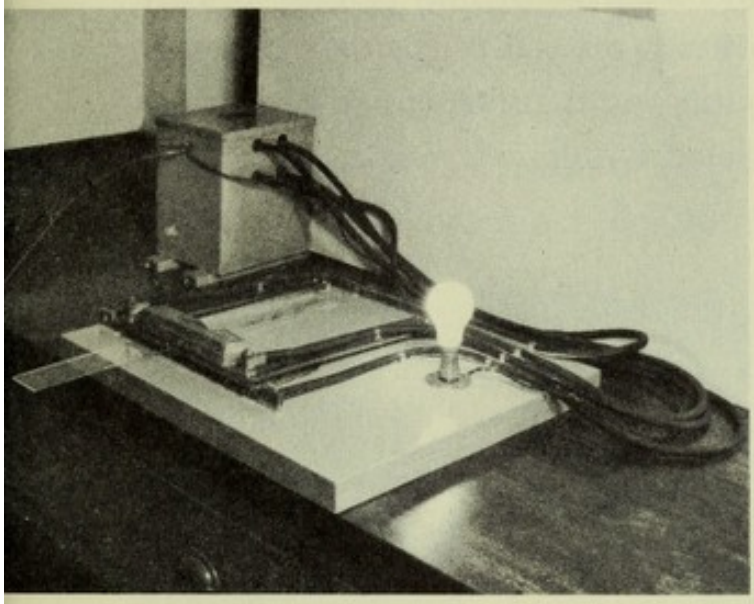
NEARLY ALL THE SPECIMENS displayed in the Museum are mounted in Perspex (methyl methacrylate) containers made by the Duguid-Young technique (Hackett and Norman, 1952), each container being individually designed for a particular specimen. Joints are processed with ethylene dichloride, producing a welded union of great strength capable of withstanding the pressure of several gallons of fluid. Pathological specimens are mainly preserved in Kaiserling's solution. Exhibits of mineral constitution such as drugs, mollusc shells and calculi are dry-mounted.

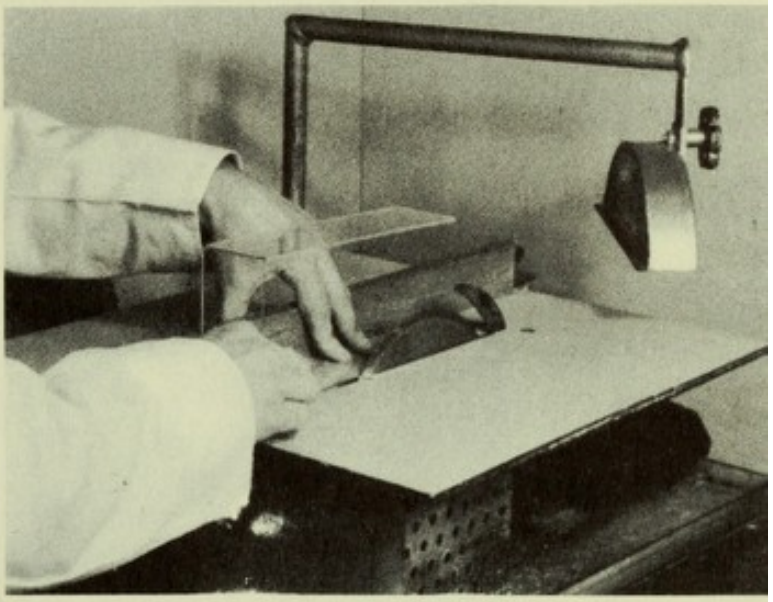
The possible use of Perspex for purposes other than those just detailed has not been overlooked. We are constantly experimenting with its use for small reproductions of protozoa, helminths, etc. to be used to illustrate written accounts of the taxonomy of these species.

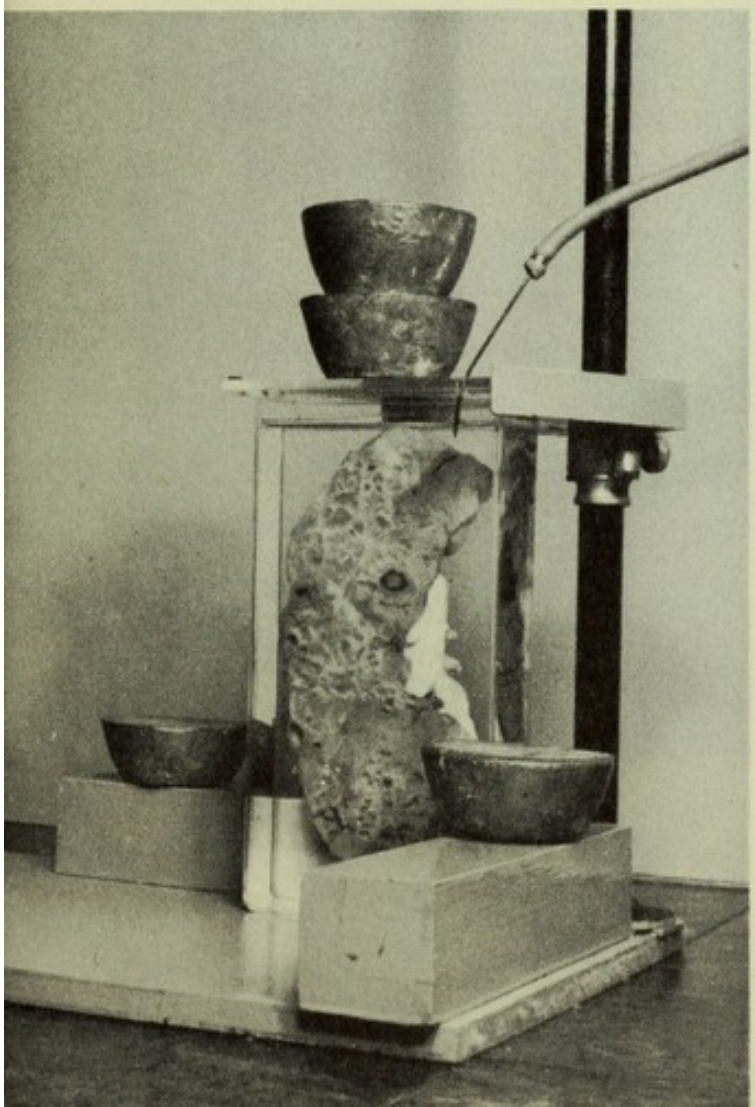
A pathological specimen encased in a Perspex container made to measure.

Transparent plastic embedding is used on a smaller scale, and several different resins have been used. The method has a limited application, and a standardized technique, suitable for all specimens, is difficult to achieve.

Reference: Hackett, C. J., and Norman, W. A. (1952), *Med. & Biol. Illust. 2*, 191.







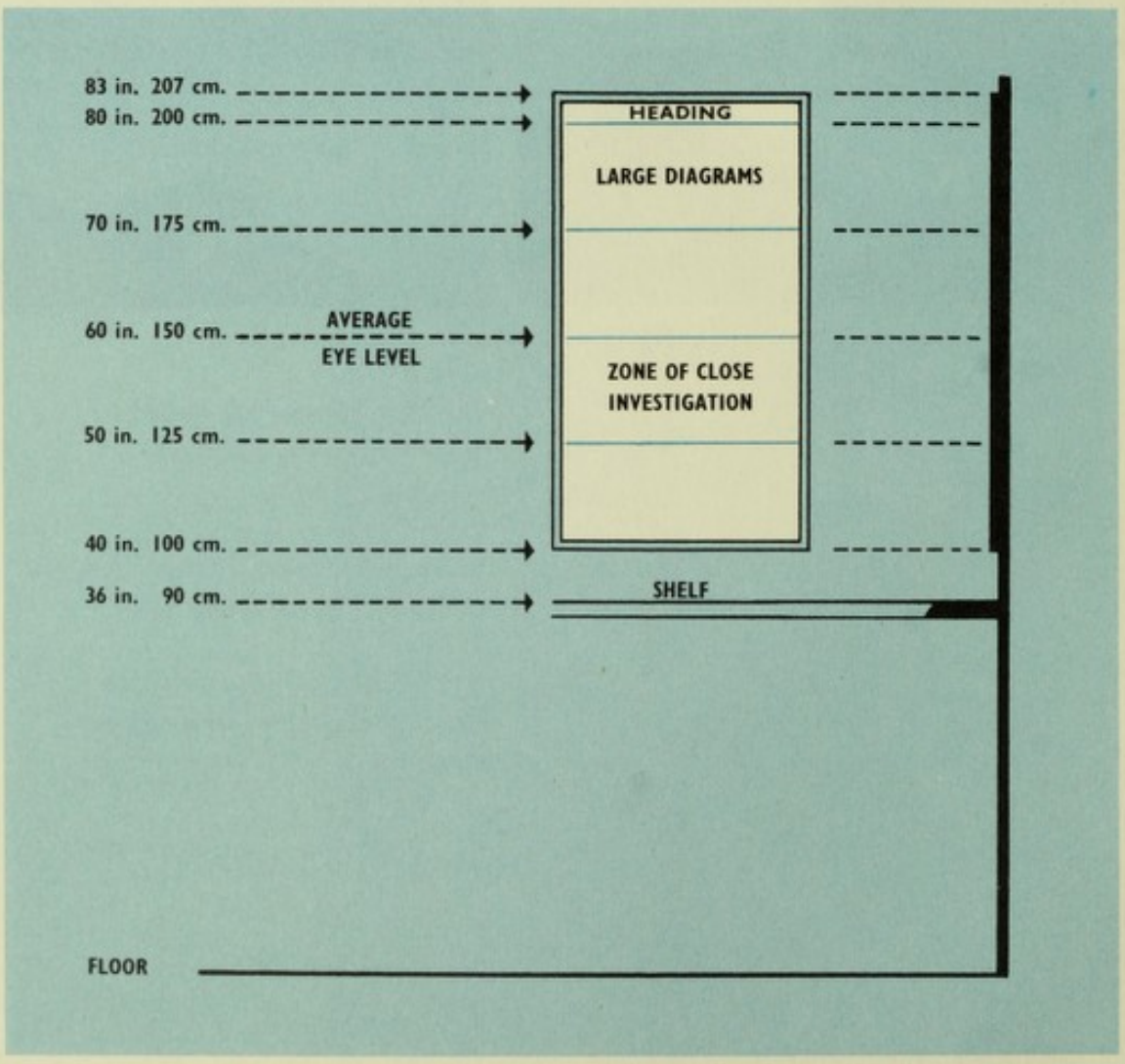
TOP LEFT: *An electrical device used for heating Perspex to a malleable temperature.*

TOP RIGHT: *A sheet of Perspex being cut to size on a special circular saw.*

LEFT: *A Perspex case containing a pathological specimen during the final filling process.*

PRINTING

THE QUANTITY OF WRITTEN MATERIAL on display is larger than that usually shown in traditional museums. Much of the close reading is relieved, however, by paragraphing and clear-cut headings. Although it is not possible to print the summaries, many of the headings and legends are printed. Printed labels are mounted on plaques of Perspex and placed immediately beneath the specimens they describe. By using 10-point Gill type, a clear and comprehensive account of the specimen can be accommodated within a few square inches.



MODELS

THE NUMBER OF MODELS displayed in the Museum has been considerably reduced in recent years; dioramas, formerly conspicuous, are now totally absent. Stuffed animals are exhibited only in one or two sections. These changes have occurred in response to the great opportunities of illustration given by modern photographic techniques. Good clinical pictures are eliminating the need for elaborate wax models of portions of the human frame.

Apart from considerations of space, practical problems of cleaning and maintenance are much less formidable with two-dimensional than with three-dimensional exhibits. Finally, the clear sequence of information which can be achieved with panels is an important objective in any display.

In a Museum established specifically for students, adequate documentation is the over-riding consideration. A small picture well described is preferable to a large solid exhibit carrying only a name.

LIGHTING

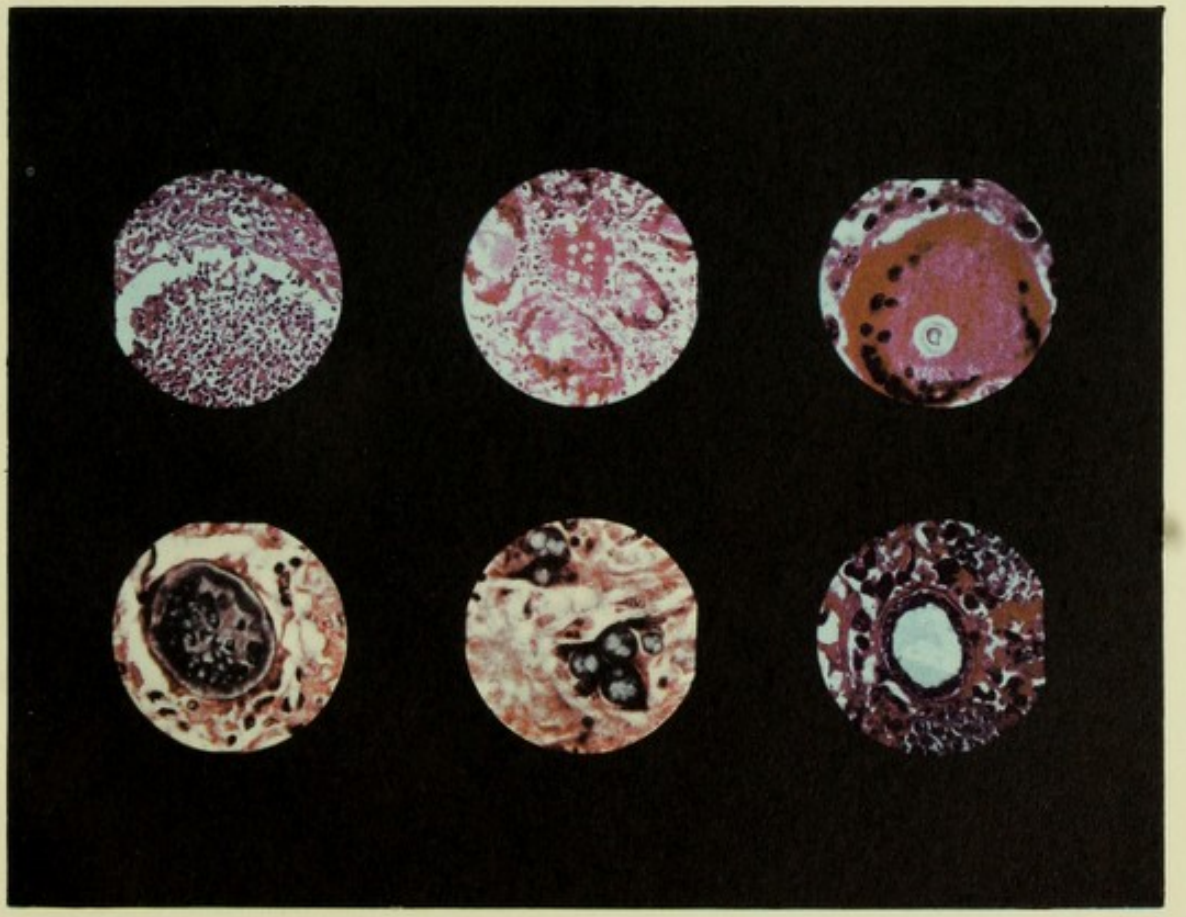
IT IS NOT EASY to devise satisfactory lighting arrangements throughout galleries divided by parallel screens eight feet deep bearing close reading matter half-way down their vertical surfaces. By using fluorescent strip lighting an intensity of about fifteen foot-candles has been obtained at eye-level. Wherever possible the tubes are placed at right angles to the screens, otherwise shadowing occurs. Anything other than a daylight lamp completely annuls the effect of modern colour photographs for clinical illustration.

A general view of the South Gallery where the difficulties of producing adequate screen illumination are considerable, owing to shadows and reflections from polished surfaces.

PHOTOMICROGRAPH TRANSPARENCIES

THE MICROSCOPICAL APPEARANCE of pathogenic organisms and diseased tissues are shown by photomicrograph transparencies. Old slides made by Lumière and Finlay processes are being replaced by others prepared by modern colour techniques at magnifications of up to 2,000 diameters. These are illuminated by strip lighting in viewing boxes which hold twelve transparencies, thus enabling the diagnostic features of one organism or pathological process to be compared side-by-side with another. The contents of these boxes are shown in Perspex frames which may be reversed if the student wishes to test himself by using the transparencies as 'spots' for diagnosis.

The characteristics of organisms and the histology of diseased tissues are displayed by coloured photomicrographs in viewing-boxes.



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