

have been isolated by S. A. Waksman and his colleagues (*Proc. Mayo Clin.*, 19, 537; 1944; and *Proc. Soc. Expt. Biol.*, N.Y., 55, 66; 1944) and are called 'streptomycin' and 'streptothricin'. Streptomycin seems to be the more valuable of the two. It is obtained from *Actinomyces griseus* and, like streptothricin, is very stable and resists moderate heat, storage and the action of most other organisms, in marked contrast to penicillin. It appears to be an organic base, soluble in water, but not in ether and chloroform. It inhibits *in vitro* the growth of human strains of the tubercle bacillus, the Gram-positive *B. subtilis* and *Staphylococcus aureus*, and the Gram-negative *Bact. coli*, *Brucella abortus*, *Bact. aerogenes* and various organisms of the *Salmonella* and dysentery groups. It has, unlike penicillin, a moderate inhibitory action upon the growth of *Proteus*, *Salmonella aertrycke* and *Pseudomonas pyocyanea*. Its toxicity to animals is fairly low. The antibacterial action of streptothricin is similar, but less powerful; and it acts upon fewer organisms.

No clinical trials have yet been reported with these substances, but tests done on mice show that streptomycin very effectively protects mice against mixed infections with *Proteus vulgaris* and an anaerobic streptococcus, both obtained from a human infection. Good results have followed the treatment with streptomycin and streptothricin of mice and chick embryos infected with various *Salmonella* species and with *Brucella abortus*. Heilman (*Proc. Mayo Clin.*, 19, 553; 1944) has reported that *Pasteurella tularensis*, the cause of tularæmia, which is not affected by sulphonamides or penicillin, is three times as sensitive as *Bact. coli* to streptomycin, which prevents infection of mice with *P. tularensis*. Feldman and Hinshaw (*Proc. Mayo Clin.*, 19, 593; 1944) have shown that, in guinea pigs inoculated with virulent tubercle bacilli and treated for sixty days with streptomycin, tuberculosis was scarcely detectable microscopically, although viable bacilli were still present, while the control animals not so treated showed widespread tuberculosis. The antibacterial action of streptomycin is, these authors think, comparable to that of promin, which they also studied.

It is clear that streptomycin and streptothricin urgently require further clinical study. An important obstacle to their clinical trial on a sufficiently extensive scale may well be the difficulty of producing them in sufficient quantity, and it is to be hoped that it will be possible to overcome this. There is considerable evidence that, although the remarkable properties of penicillin justify all the effort that is being expended upon it, that effort must not distract attention from the other antibacterial substances which are being constantly isolated from an increasing variety of living organisms. Among these the soil bacteria are important. The properties of gramicidin and gramicidin S, obtained from soil bacteria, were noted recently in *Nature* (246, Feb. 24, 1945). Another heat-stable substance which is chemically similar to, but apparently not identical with, the gramicidin isolated by Hotchkiss and Dubos in America (see *J. Exp. Med.*, 73, 629; 1941 and other papers) has been isolated by J. C. Hoogerheide (*J. Bact.*, 40, 415; 1940, and *J. Franklin Inst.*, 229, 677; 1940) from soil bacteria. It prevents the formation of the capsule by Friedländer's bacterium, types A and B. Its chemical, therapeutic and other properties are summarized by E. McDonald (*J. Franklin Inst.*, 229, 805; 1940). Dr. V. W. Murray Wright reported that the material originally isolated by

Hoogerheide from the bacteria was "very valuable and safe" for the treatment of external lesions in human patients. Dr. Wright (*J. Franklin Inst.*, 233, 188; 1942) also reports on a series of ninety human cases infected with Gram-positive organisms and treated with what is apparently the same substance (designated H 1). The organisms rapidly disappeared and healing was stimulated. G. LAPAGE.

UNITED STATES ANTARCTIC DISCOVERIES

THE work of the United States Antarctic Service Expedition of 1939-41 has been overshadowed by war and was little known in Great Britain. The volume now published (Reports on the Scientific Results. New York: *Proc. Amer. Phil. Soc.*, 89, No. 1, 1945) gives full accounts of all aspects of the expedition's work in a long series of papers, many of which are well illustrated but none of which is well supplied with maps.

This was Admiral R. E. Byrd's third expedition, but the first official United States expedition to the Antarctic for a hundred years. It was well equipped and carried a large scientific staff to its two bases, the east base in Marguerite Bay, Graham Land, wrongly called the Palmer Peninsula, and the west base at the Bay of Whales on the Ross Barrier. The first was new territory for the Americans; the second was in an area where much American work had already been done, but it seems, at the least, ungracious to reduce Scott's King Edward VII Land to a mere peninsula of Marie Byrd Land.

Discoveries made by plane and sledge journeys were noteworthy, and geological work was a feature of all land travel. Several of the most important papers in this symposium are by Lieut.-Com. R. B. Black, Com. F. Ronne, Major P. A. Siple, Major F. A. Wade, L. A. Warner, C. F. Passel, P. H. Knowles and Prof. D. Stewart. A sledge journey along King George VI Sound and a flight west of Alexander I Island carried the map west of the discoveries of the Rymill expedition. Alexander I Land is certainly an island, and west of it lies the much smaller Charcot Island. West of King George VI Sound the coast-line seems to run mainly east and west to high land in about long. 95°-100° W. South Graham Land is a plateau of some 4,000-5,000 ft. uncut by straits, and facing the Weddell Sea is the lofty edge of the George Black Range in about long. 60° W. from about lat. 72° S. to 77° S.

On the other side of Antarctica, the Edsel Ford ranges of Marie Byrd Land were well explored, and the coast-line, Hobbs Coast, continued east of Cape Rupert. Several flights across the Ross Barrier were also made. Evidence was found of several small islands under the Barrier, smaller than Roosevelt Island. There was little evidence of the Barrier having calved in recent years. It is suggested that the Bay of Whales is the meeting-place of two shelf-ice systems, on the western side from the south and on the eastern from the south-east. These systems thus cause crumbling of bay-ice in that area. No suggestion was noted of sea-level connexion between the Ross and Weddell Seas.

Some light was thrown on the problem of the relationship of the Andean structure of Graham Land with the predominant plateau structure of the

greater part of Antarctica. The Rockefeller Mountains of King Edward Land and the Edsel Ford ranges of Marie Byrd Land are both a series of north-west trending folds of metamorphics and acid intrusives: "No true relationship is indicated between this unit and any of the previously described Antarctic localities". But on the whole the affinities seem to be with the Andean structure. The new land examined in the south of Graham Land is definitely Andean in structure, though the Weddell Sea coast has a definite block fault topography with much granite and slate.

Many other valuable researches are discussed in this volume. R. N. RUDMOSE BROWN.

FORTHCOMING EVENTS

Monday, October 1

BRITISH MUSEUM (NATURAL HISTORY), South Kensington, London, S.W.7, at 2.30 p.m.—Dr. J. Ramsbottom, O.B.E.: "Edible Fungi". Also on Mondays and Fridays until October 26.

ROYAL INSTITUTION (Albemarle Street, London, W.1), at 5 p.m.—Lord Rayleigh, Sir Robert Robertson, Sir Richard Paget, Mr. R. S. Whipple, Prof. W. V. Mayneord and Sir Henry Dale: "Life and Work of Major C. E. S. Phillips".

SOCIETY OF ENGINEERS (at the Geological Society, Burlington House, London, W.1), at 5 p.m.—B. A. P. Winton Lewis: "The Engineer and the Housing Problem".

SOCIETY OF CHEMICAL INDUSTRY, LONDON SECTION (at the Chemical Society, Burlington House, Piccadilly, London, W.1), at 7.15 p.m.—Dr. E. S. Hedges: "New Developments in Tin and Tin Alloy Coatings".

Wednesday, October 3

INSTITUTE OF WELDING (at the Institution of Civil Engineers, Great George Street, London, S.W.1), at 6 p.m.—Mr. W. K. B. Marshall: "The Fabrication of Aircraft Fuel Tanks in Aluminium Alloy containing 3% Magnesium" (Sir William J. Larke Medal Prize Paper).

SOCIETY OF PUBLIC ANALYSIS AND OTHER ANALYTICAL CHEMISTS (at the Chemical Society, Burlington House, Piccadilly, London, W.1), at 6.30 p.m.—Mr. Eric C. Wood: "The Theory of certain Analytical Procedures, with special reference to Microbiological Assays".

Thursday, October 4

ROYAL COLLEGE OF SURGEONS OF ENGLAND (Lincoln's Inn Fields, London, W.C.2), at 5 p.m.—Dr. Leslie Foulds: "Observation and Theory in Cancer Research" (Imperial Cancer Research Fund Lecture).

CHEMICAL SOCIETY (at Burlington House, Piccadilly, London, W.1), at 5 p.m.—Dr. U. R. Evans: "Recent Work on Corrosion and Oxidation Reactions".

INSTITUTION OF ELECTRICAL ENGINEERS (at Savoy Place, Victoria Embankment, London, W.C.2), at 5.30 p.m.—Dr. P. Dunsheath: Inaugural Address as President.

Friday, October 5

BRITISH RHEOLOGISTS' CLUB (at the Engineers' Club, Manchester), at 11 a.m.—Business Meeting; at 2 p.m. (joint meeting with the MANCHESTER SECTION OF THE OIL AND COLOUR CHEMISTS' ASSOCIATION)—Discussion on "General Rheological Properties of Suspensions" (to be introduced by Mr. J. Pryce Jones and Mr. W. F. Carey).

ASSOCIATION OF APPLIED BIOLOGISTS (at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1), at 11 a.m. and 2.15 p.m.—Symposium on Some Agricultural Uses of D.D.T.

PHYSICAL SOCIETY (at the Physics Department, Imperial College, London, S.W.7), at 5 p.m.—Dr. D. H. Smith: "A Method for obtaining small Mechanical Vibrations of known Amplitude"; Dr. S. R. Pele: "The Photographic Action of X-Rays"; Rev. G. D. Yarnold: "The Hysteresis of the Angle of Contact of Mercury".

SOCIETY OF CHEMICAL INDUSTRY, PLASTICS GROUP AND GLASGOW SECTION (at the Royal Technical College, Glasgow), at 7.15 p.m.—Prof. H. W. Melville: "Structure and Synthesis of Vinyl Plastics".

APPOINTMENTS VACANT

APPLICATIONS are invited for the following appointments on or before the dates mentioned:

TWO ASSISTANT LECTURERS IN APPLIED MATHEMATICS in the University of Liverpool—The Registrar (Oct. 1).

PRINCIPAL at a Farm Institute for Training ex-Service men, to be opened in Norfolk—Executive Officer, Norfolk War Agricultural Executive Committee, Sprowston, Norwich (Oct. 3).

DISTRICT OFFICER to the Berkshire War Agricultural Executive Committee—The Secretary, 1 Abbot's Walk, Reading (Oct. 6).

LECTURER IN ORGANIC CHEMISTRY at the Mid-Essex Technical College, Market Road, Chelmsford—Chief Education Officer, County Offices, Chelmsford (Oct. 6).

LECTURER with special responsibility for AERONAUTICAL ENGINEERING at the Technical College, Coventry—Director of Education, Coventry Local Education Authority (Oct. 8).

GRADUATE TEACHER OF ELECTRICAL ENGINEERING and allied subjects at the School of Engineering and Navigation, High Street, Poplar, London, E.14—The Education Officer (T.1), County Hall, London, S.E.1, on application form T.1/40, for which a stamped addressed envelope should be sent (Oct. 8).

LECTURER IN GEOGRAPHY at the London School of Economics and Political Science, Houghton Street, London, W.C.2—The Secretary (Oct. 8).

GRADUATE ASSISTANT to teach ENGINEERING SUBJECTS at the Stockton-on-Tees Technical School—The Director of Education, Shire Hall, Durham (Oct. 10).

One CHIEF CHEMIST (Ref. F.4816.XA), four ASSISTANT CHEMISTS (Ref. F.4817.XA), and one ASSISTANT MECHANICAL ENGINEER (Ref. C.2797.XA), in a South American spinning rayon plant—The Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 670, York House, Kingsway, London, W.C.2, quoting appropriate Ref. No. (Oct. 12).

DIRECTOR-GENERAL OF THE BRITISH PRODUCTION ENGINEERING RESEARCH ASSOCIATION—The Association, Box A.1183, *The Times*, London, E.C.4 (Oct. 19).

DEVELOPMENT ENGINEERS (copper and copper alloys), one ELECTRICAL (D.1388.XA) and one MECHANICAL (C. 2736.XA)—The Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 670, York House, Kingsway, London, W.C.2, quoting appropriate Ref. No. (Oct. 19).

DISTRICT ENGINEER (civil) for the Sudan Government—The Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 670, York House, Kingsway, London, W.C.2, quoting E.1954.A (Oct. 20).

DIRECTOR OF RESEARCH, Institution of Automobile Engineers—The Chairman of the Institution, Research Department, Great West Road, Brentford, Middlesex, marked "Director of Research" (Oct. 20).

TWO DISTRICT LOCOMOTIVE SUPERINTENDENTS for the Sudan Government—The Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 670, York House, Kingsway, London, W.C.2, quoting C.2798A (Oct. 26).

PHYSIOLOGIST at the Laboratory of the Marine Biological Association of the United Kingdom, Citadel Hill, Plymouth—The Secretary (Oct. 31).

CURATOR OF VERULAMIUM MUSEUM, St. Albans—The Town Clerk, St. Albans, endorsed "Curator" (Oct. 31).

SUB-LIBRARIAN in the University Library, St. Andrews—The Librarian (Nov. 1).

DEPUTY CITY ANALYST, City and County of Bristol—The Medical Officer of Health and Professor of Preventive Medicine, Department of Public Health, Kenwith Lodge, Westbury Park, Bristol 6, endorsed "Deputy City Analyst" (Nov. 3).

JACKSON CHAIR OF ENGINEERING in the University of Aberdeen—The Secretary (Nov. 15).

RUTHERFORD MEMORIAL RESEARCH FELLOWSHIP (physics, chemistry and/or mathematics) at Canterbury University College, Christchurch, New Zealand—The Secretary, Universities Bureau of the British Empire, care of University College, Gower Street, London, W.C.1 (applications to reach New Zealand by January 31, 1946).

DEMONSTRATOR IN PHYSICS at Guy's Hospital Medical School, London, S.E.1—The Dean of the School.

CHIEF DEVELOPMENT ENGINEER to the Research and Development Department, United Steel Companies, Ltd.—The Secretary, 17 Westbourne Road, Sheffield, 10.

CHAIR OF MINING AND METALLURGY, CHAIR OF ELECTRICAL ENGINEERING, and CHAIR OF MECHANICAL ENGINEERING, University of Adelaide—The Secretary, Universities Bureau of the British Empire, care of University College, Gower Street, London, W.C.1.

HEAD OF THE ENGINEERING DEPARTMENT, Municipal College, Bournemouth—The Director of Education, Town Hall, Bournemouth.

PRINCIPAL OF THE LOWESTOFT TECHNICAL INSTITUTE—The Chief Education Officer, County Education Department, County Hall, Ipswich.

LECTURER IN ELECTRICAL ENGINEERING, and LECTURER IN MECHANICAL ENGINEERING, in the Nottingham and District Technical College—The Acting Clerk to the Governors, Education Office, South Parade, Nottingham.

ASSISTANT (graduate in zoology or physiology) FOR CANCER CHEMOTHERAPY INVESTIGATIONS—Hosa Research Laboratories, Sunbury-on-Thames.

TECHNICAL ASSISTANT in the GEOLOGY DEPARTMENT, University of Birmingham—Prof. J. J. Willis.

ASSISTANT LECTURER and DEMONSTRATOR IN PHYSICS at the Royal Holloway College, Englefield Green, Surrey—The Principal.

LECTURER IN PHYSICS at the Stockport College for Further Education—The Deputy Director of Education, Education Offices, Town Hall, Stockport.

GRADUATE LECTURER in MECHANICAL ENGINEERING SUBJECTS at the Kingston Technical College—The Principal.

DEMONSTRATORS IN PHYSICS, BIOLOGY and CHEMISTRY (one each), and a TECHNICIAN, at St. Bartholomew's Hospital—The Vice-Dean of the Hospital, at Queens' College, Cambridge.