SCIENCE

The American Association for the Advance- ment of Science:	91
Mining in Canada: Dr. J. B. Tyrrell	э'n
The Scientific Resources of France: Dr. THEODORE C. MERRILL	38
Recent Work in Paleobotany: Professor NEVIN M. FENNEMAN	44
Scientific Events: The Old Ashmolean Museum at Oxford; The National Office of Eugenics in Belgium; Sir Edward Sharpey Schafer; The International Conference on the Standardization of Serums	.45
Scientific Notes and News	47
University and Educational Notes	5 2
Discussion and Correspondence: A Proposal for Wild Plant Conservation: DR. C. STUART GAGER. That Chemical Spelling Match again: PROFESSOR C. A. JACOBSON. A Scientific Clearing House: DR. HAROLD C. BINGHAM	52
Quotations: Voluntary Stupidity	55
Developed and Potential Water Power of the United States	
Special Articles: Thermionic Effects caused by Alkali Vapors in Vacuum Tubes: Dr. Irving Langmuir. The Oxidation of Selenium by a New Group of Autotrophic Microorgan- isms: Professor Jacob G. Lipman and Dr. Selman A. Waksman	58

ciation for the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

100 Liberty St., Utica, N. Y. Garrison, N. Y.

New York City: Grand Central Terminal

Single Copies, 15 Cts. Annual Subscription, \$6.00 Entered as second-class matter January 21, 1922, at the Post Office at Utica, N. Y., Under the Act of March 3, 1879.

MINING IN CANADA

CANADA covers the northern half of the North American continent, having an area of 3,729,665 square miles. About 700,000 square miles of this great area are covered with rich fertile soil, 900,000 square miles with forest, and 120,000 square miles with lake, etc., while over about 200,000 square miles the surface is buried under a thick blanket of moss. remainder of the country, as well as some of the forested area, is rocky, and a study of how this rocky country should best be utilized for the benefit of mankind, is one of the greatest research problems of this age, a problem beside which most of those undertaken in our small laboratories dwarfs into insignificance.

The prospector and miner are the men who at the present time are doing most to work out the solution of this problem. In their work they have been assisted for the past eighty years by the Geological Survey of Canada, one of the earliest scientific research bureaus to be established on this Continent, and also, but in later years, by the Geological and Mining Bureaus of the various provinces.

In the 16th century when the gold and silver mines of South America and Mexico were attracting the attention of many of the leading men of the different nations of Europe. Canada did not entirely escape attention, for in 1576, three years after the rich gold mines of Minas Geraes of Brazil had been discovered. Martin Frobisher, one of the great sailors of the "Elizabethan Era," sailed from the Port of London in search of a northwest passage north of the Continent of America to Asia. where fabulous stores of metallic riches were believed to exist. He did not get half way to his destination, but was stopped by ice in a bay on the east side of Baffin Island, whence he returned to England. After his return a

1 Address of the president and vice-president of Section M, American Association for the Advancement of Science, December, 1922.

CORNELL UNIVERSITY MEDICAL COLLEGE

First Avenue and Twenty-eighth Street NEW YORK CITY

> The first year of the course is also offered at Ithaca, N. Y., subsequent years at New York City only.

> > For Information Address

THE SECRETARY

Johns Hopkins University Medical School

The Medical School is an Integral Part of the University and is in the Closest Affiliation with the Johns Hopkins Hospital.

Candidates for admission must be graduates of approved colleges or scientific schools with at least two years' instruction, including laboratory work in chemistry, and one year each in physics and biology, together with evidence of a reading knowledge of French and German. Each class is limited to 75 students, men and women being admitted on the same terms. Except in unusual circumstances, applications for admission will not be considered after July 1st.

It vacancies occur, students from other in the same terms.

If vacancies occur, students from other institutions desiring advanced standing may be admitted to the second or third year provided they fulfill our requirements and present exceptional qualifications.

INSTRUCTION

The academic year begins the Tuesday nearest October 1, and closes the second Tuesday in June. The course of instruction occupies four years and especial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the dispensary.

TUITION The charge for tuition is \$300 per annum, payable in three installments. There are no extra fees except for rental of microscope, certain expensive supplies, and laboratory breakage.

The annual announcement and application blanks may be obtained by addressing the

Dean of the Johns Hopkins Medical School, Washington and Monument Sts., Baltimore, Md. SUMMER WORK FOR GRADUATES IN MEDICINE Beginning Monday, June 4th, and ending Saturday, July 14th, a course in medical diagnosis, including laboratory exercises in clinical pathology and demonstrations in pathological anatomy, will be offered. The course will be limited to thirty students, fee \$100. Applications should be made to the Dean's Office.

Northwestern University MEDICAL SCHOOL

Situated in Chicago in close proximity to important Hospitals with an abundance of clinical material.

ADMISSION REQUIREMENTS-Two years of College credit including a satisfactory course in Physics, Chemistry, Biology or Zoology, and French or German.

COURSE OF STUDY-leading to the degree of Doctor of Medicine-Four years in the Medical School and a fifth year either as Interne in an approved hospital or devoted to research in some branch of Medical Science.

GRADUATE INSTRUCTION-in courses leading to the degree of Master of Arts or Doctor of Philosophy.

RESEARCH FOUNDATION-The James A. Patten Endowment for Research affords unusual opportunities for advanced students of Medical Science to pursue special investigations.

RESEARCH FELLOWSHIPS-Four fellowships of the value of \$500 each are awarded annually to promote scholarly re-

Tuition fees of the first and second years, \$190.00 a year. The third and fourth years, \$200.00 a year.

For information address

C. W. PATTERSON, Registrar

2421 South Dearborn Street, Chicago, Illinois

YALE UNIVERSITY

SCHOOL OF MEDICINE

Affiliated with the New Haven Hospital and New Haven Dispensary

111TH SESSION

Reorganized on a full-time basis

Entrance Requirements: A minimum of three years (or its equivalent) of college including general biology, physics, general and organic chemistry, qualitative analysis, physical chemistry or laboratory physics, and either French or German.

ALL THE GENERAL FACILITIES OF THE UNIVERSITY ARE AVAIL-ABLE TO MEDICAL STUDENTS

As the number admitted to each class is limited, applications must be made before July 1.

Dean, Yale University School of Medicine

NEW HAVEN, CONN.



A source of mono-frequency or monochromatic infra-red, near and far ultra-violet, and visible radiations.

Invaluable for Polarimetry Interferometry Photomicrography Optical Laboratory Work with

> Spectrometer Monochromator Refractometer Diffraction Grating Fresnel Mirrors and Bi-prism.

Demonstration of
Fluorescence
Polarization
Filter Absorptions
Photo-electric Effects.

The Labarc is designed in size, finish and adaptability to be an accessory to the finest optical apparatus. It operates on either alternating or direct

Descriptive Engineering Department Technical Bulletin 104 contains an unique mercury arc frequency spectrum and valuable data on available filters and their transmissions—a copy will be mailed you on request.

COOPER HEWITT ELECTRIC COMPANY

95 River Street, Hoboken, N. J.

C.H. 123

HIGH VACUUM PUMPS

Whenever in lecture-room or laboratory practice, really high vacuum is required, we recommend the Condensation Pump developed by Dr. Irving Langmuir of the General Electric Company—believing it to be superior to any other as yet obtainable.

The Langmuir Pump operates with surprising rapidity, and there seems to be no practical limit to the degree of exhaustion that can be produced.

Some form of auxiliary pump must be used; and for that purpose we offer a special G.E. two-stage oil-sealed mechanical pump, which

is capable of producing a vacuum of 0.001 mm, when used alone.

The picture shows a complete outfit comprising Langmuir Condensation Pump, two-stage auxiliary pump and ½ H.P. motor—all mounted together on one base.

Write for descriptive bulletin S-965

JAMES G. BIDDLE 1211-13 Arch St., Philadelphia