

SCIENCE

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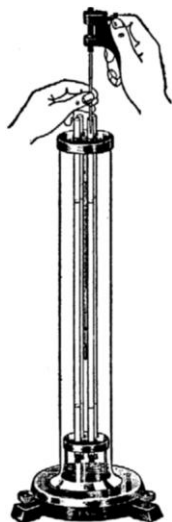
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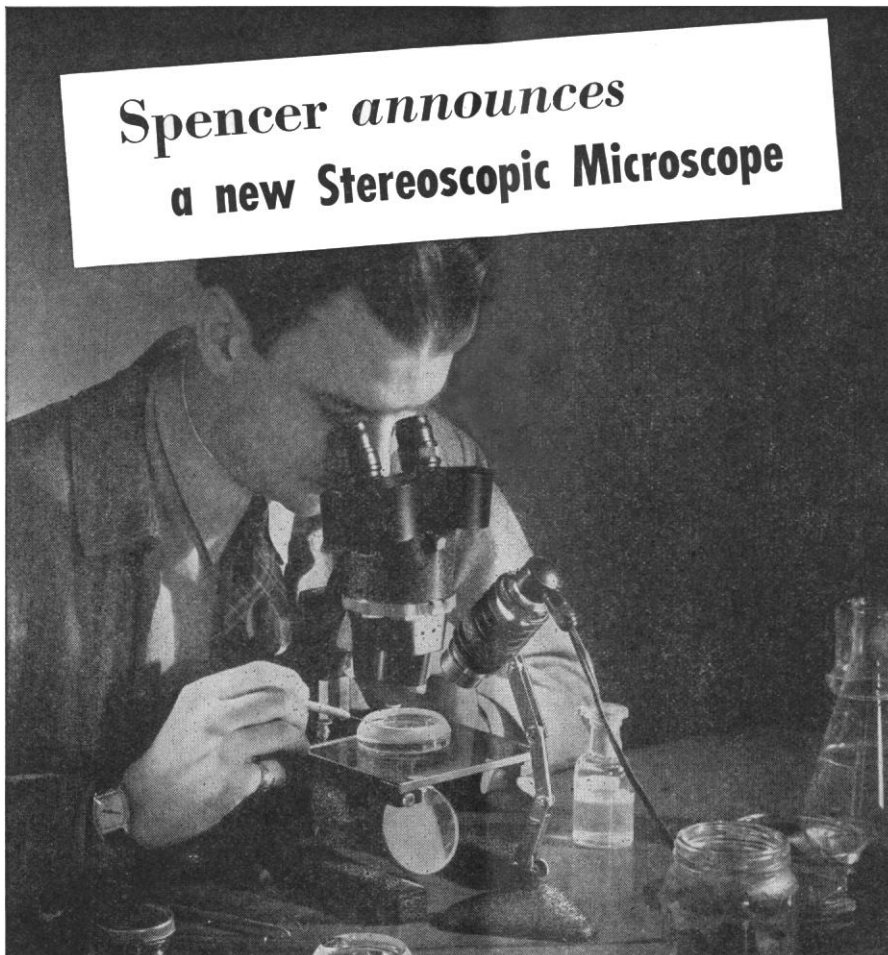
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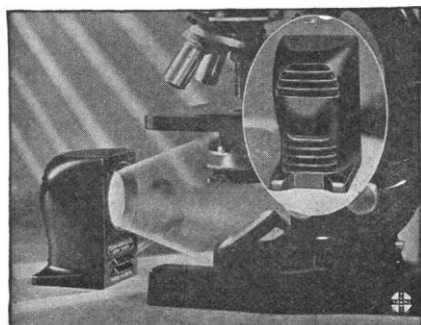
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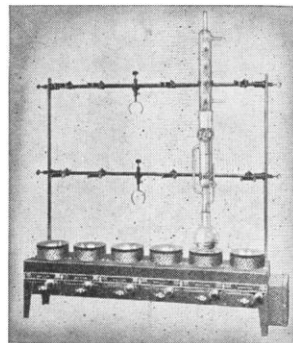
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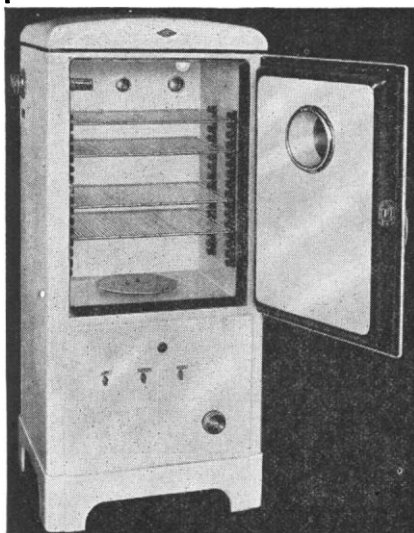
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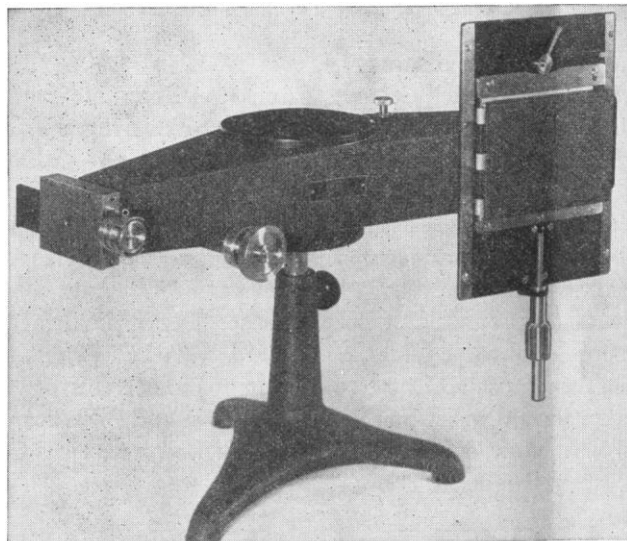
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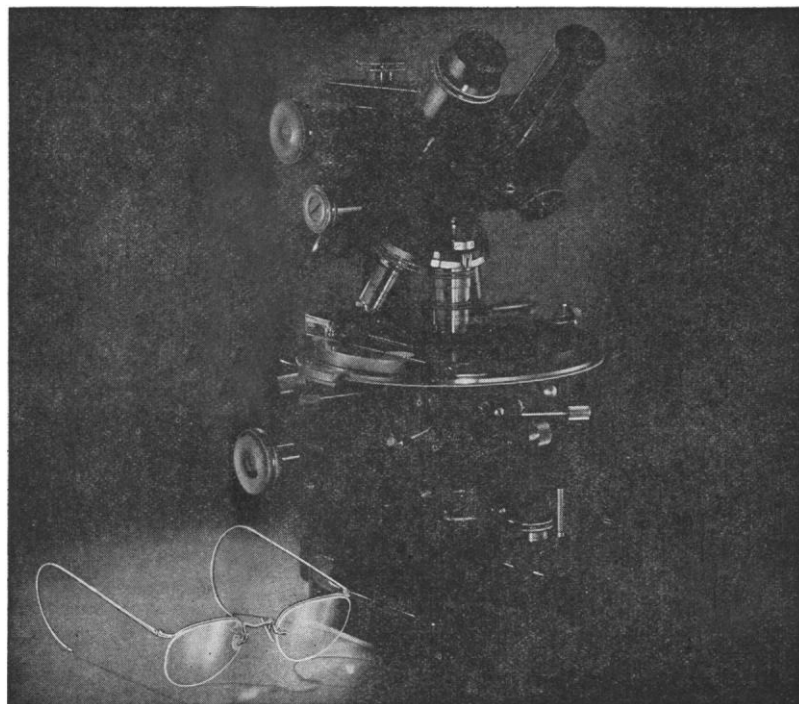
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SCIENCE

VOL. 91

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No. 2365

The American Association for the Advancement of Science:
Some Soil Factors Affecting Tree Growth: PROFESSOR ROBT. M. SALTER 391

Scientific Events:

Mathematical Symposium at the University of Notre Dame; Centennial Celebration of the Founding of the Department of Chemistry of Western Reserve University; Appointments in the Regional Laboratories of the U. S. Department of Agriculture; The Eighth American Scientific Congress; The American Philosophical Society 398

Scientific Notes and News 401

Discussion:

The Question of the Cell Theory: PROFESSOR JOHN P. TURNER. *Electricity Elicited by an Organic Chemical Process:* DR. D. NACHMANSOHN. *Again Science in China:* DR. GEORGE W. HUNTER, III. *The Programs of Scientific Meetings:* C. B. MENDENHALL 404

Reports:

Pure and Applied Science at the Mellon Institute: DR. W. H. HAMOR 407

Special Articles:

Factor Affecting the Insulin Content of Pancreas:

DR. R. E. HAIST and PROFESSOR C. H. BEST. *Toxicity of Extracts of the Postpartum Rabbit Uterus:* DR. BORIS KRICHESKY and WILLIAM POLLOCK. *The Biological Activity of Synthetic Pantothenic Acid:* DR. DONALD PRICE and OTHERS 410

Scientific Apparatus and Laboratory Methods:

Improvements in the Harvard Spring Kymograph: HUGH B. MCGLADE. *A Plastic Cover Glass Isobutyl Methacrylate:* HAROLD C. O'BRIEN and PROFESSOR ROBERT T. HANCE 412

Science News 8

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SOME SOIL FACTORS AFFECTING TREE GROWTH¹

By ROBT. M. SALTER

PROFESSOR OF SOILS, THE OHIO STATE UNIVERSITY, AND CHIEF IN AGRONOMY,
 OHIO AGRICULTURAL EXPERIMENT STATION, WOOSTER

It is just one hundred years since Liebig, in his famous report to the British Association upon the state of organic chemistry, delivered with vitriolic invective the death sentence to the theory held by contemporary plant physiologists that plants obtain their carbon from the soil. He did it in these words, "All explanations of chemists must remain without fruit, and useless, because, even to the great leaders of physiology, carbonic acid, ammonia, acids and bases are sounds without meaning, words without sense, terms of an unknown language, which awaken no thoughts

¹ Address of the retiring vice-president and chairman of the Section on Agriculture, American Association for the Advancement of Science, Columbus, Ohio, December 30, 1939.

and no associations." How different is the state of affairs to-day, how ramshackle have become the once hallowed walls dividing the natural sciences, must be apparent when an agronomist deigns to rise before a group of horticulturists and foresters and speak on a program dealing with the physiological aspects of tree growth. Fortunately it appears now well established that both fruit and forest trees send their roots into the soil, that natural medium which until recent times was peculiarly the domain of the agronomist. Fortunately, also, the interactions of the soil and tree appear not to differ materially from the interactions of the soil and agronomic crops. In fact, except in the degree of surface manipulation involved and in the

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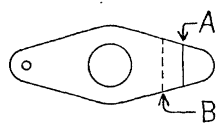


Fig. 1

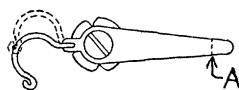


Fig. 2

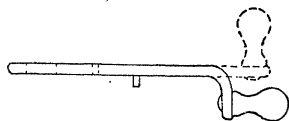


Fig. 3

inch from the cut end (B, Fig. 1). This allows the free end of the clip to move about three sixteenths of an inch when mounted on the drum. Tension, once adjusted, remains constant.

Brake: Bend the end of the brake arm one fourth inch from the end downward 90° (A, Fig. 2). Adjust brake shoe so that braking occurs when arm is moved to the right as far as possible. Brakes so adjusted require no attention for years.

Winding lever: Bend the winding lever downward 90° one half inch from the free end (Fig. 3). This places knob in a horizontal position on the side of the kymograph and prevents interference with the rotating vane.

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BOOKS RECEIVED

- Annual Report of the Surgeon General of the Public Health Service of the United States, 1939.* Pp. vi + 185. Superintendent of Documents, Washington, D. C.
- BOOTH, HAROLD S. and VIVIAN R. DAMERELL. *Quantitative Analysis.* Pp. xi + 246. 48 figures. McGraw-Hill. \$2.25.
- CASTLE, WILLIAM E. *Mammalian Genetics.* Pp. viii + 169. 131 figures. Harvard University Press. \$2.00.
- HOVING, WALTER. *Your Career in Business.* Pp. 211. Duell, Sloan and Pearce, New York. \$2.00.
- MINNAERT, M. *Light and Colour in the Open Air.* Pp. xi + 362. 160 figures. 16 plates. C. Bell and Sons, London. 15/.

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