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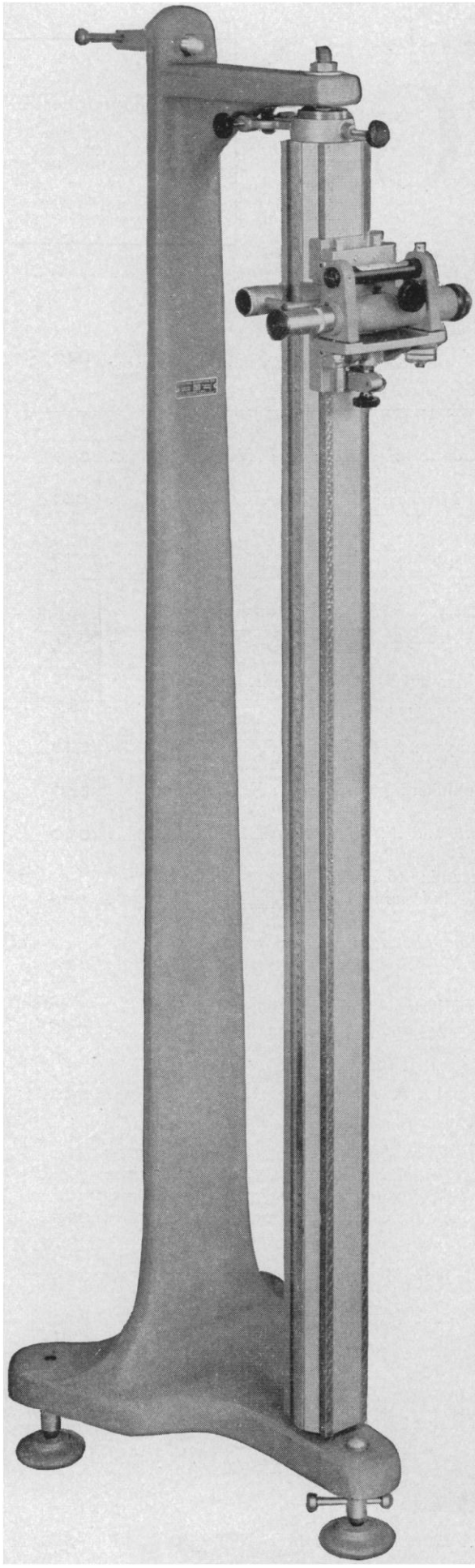

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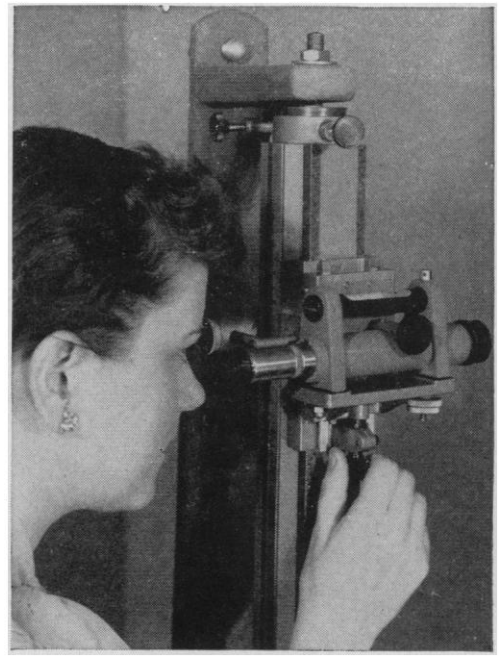

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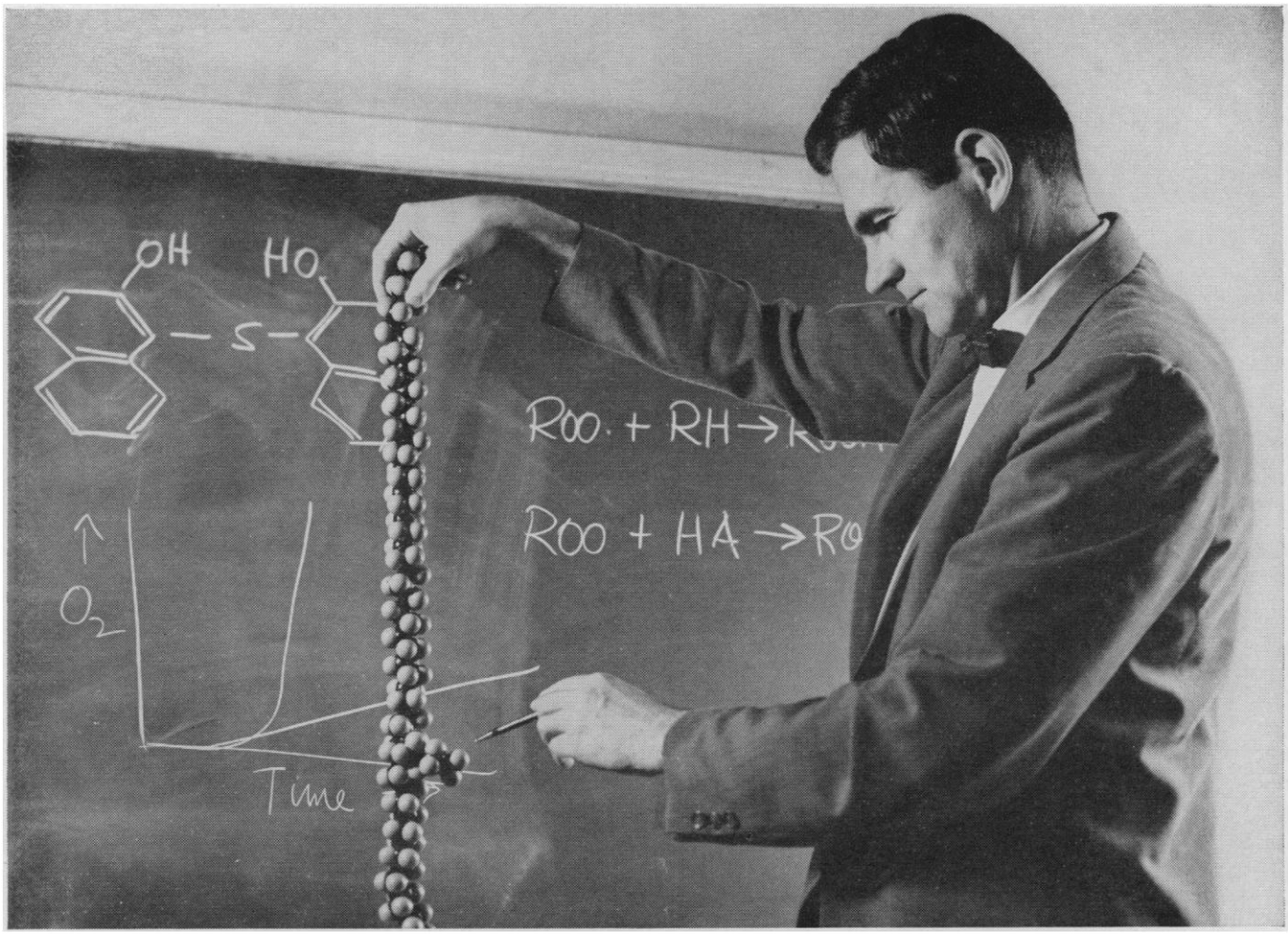

Bell Laboratories chemist Field H. Winslow, Ph.D., Cornell University, with a scale model of a small section of a polyethylene molecule. Branch formation indicated by pencil is vulnerable to oxidation. Dr. Winslow and his associates worked out a simple way to protect long polyethylene molecules needed for durable cable sheathing.

THE DILEMMA OF GIANT MOLECULES

Solution: 2 plus 2 equals 5

Polyethylene is used to protect thousands of miles of telephone cables. It is tough, light and long lasting. Its strength lies in its giant molecules—a thousand times bigger, for example, than those of its brittle chemical cousin, paraffin wax.

But polyethylene has a powerful enemy: oxidation, energized by light and heat, shatters its huge molecules to pieces. This enemy had to be conquered if polyethylene was to meet the rigorous demands of cable sheathing. Paradoxically, it was done by making the whole better than the sum of its parts—just as though 2 plus 2 could be made to add up to 5.

To check the ravages of light, Bell Laboratories chemists devised the simple yet highly effective remedy of adding a tiny dose of carbon black. Then antioxidants, such as those commonly used to protect rubber, were added to check attack by heat. But here the chemists encountered a dilemma: although the carbon black protected against the effects of light, it critically weakened the effectiveness of the antioxidants.

To solve this dilemma, Bell Labs chemists developed entirely new types of antioxidants—compounds not weakened by carbon black but which, intriguingly, are very much more effective when carbon black is present. The new antioxidants, plus carbon black, in partnership, provide long-lasting cable sheath—another example of how research at Bell Telephone Laboratories works to improve your telephone service.

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different origin is persuasive, and to me, compelling. But when he goes on to argue (page 155 and elsewhere) that the existence of abundant lavas of granitic composition is irrelevant to the question of the existence of a granitic magma, he seems to write a lawyer's brief. It is as much as to say that basaltic lavas do not prove the existence of a basaltic magma. Despite this bias, there are pages in which Read grants that the second variety of "granites" of his "Granites and granites" dichotomy may, indeed, be partly magmatic. This admission seems to render unnecessary the strained logic that considers glassy siliceous lavas irrelevant to the question of molten siliceous magmas, potentially sources of magmatic granite.

Space limitations preclude an elaborate discussion of the arguments. Every geologist interested in petrology and metamorphism will find much of interest in the book. The discussion of metamorphic facies, of the depth factor in metamorphism, of the migmatite and basic fronts, and of many other topics are of great interest and value. Not the least merit of the book is its review of the long history of the granite controversy. But the modern papers cited seem to have been selected mainly because they support the author's thesis, and far too many of them are quite unconvincing even to a rather sympathetic reader. In the American literature cited, one looks in vain for field reports by Lindgren, Knopf, Larsen, or Buddington; the question of stoping is cavalierly dismissed without reference to Barrell, Daly, Butler, or Loughlin. Similar bias is shown throughout.

The book thus seems to me to present an attorney's brief for the transformist position. That position seems strong enough not to require shoring up with so many ex parte arguments. If ultrametamorphism can produce a migma, as most field men will grant, there is nothing incredible about the further step of complete melting, even though it has not been proved. Nor would the concession of the existence of granitic magma or of stoping in some places disprove, or even weaken, the arguments for transformation in other locales. Not every problem in plutonic geology must have a single solution, nor must one accept as final the progress reports of 1957. At least, the author has not gone over to the dry diffusionists!

No one can read Read's stimulating review without perceiving some fruitful new relationships. Read is a scholar and an experienced and thoughtful field man. His book is recommended to every "hard-rock" geologist, however dangerous it might be to the uncritical.

JAMES GILLULY
U.S. Geological Survey

The Aleut Dentition. A correlative study of dental characteristics in an Eskimoid people. Coenraad F. A. Moorrees. Harvard Univ. Press, Cambridge, Mass., 1957. 196 pp. Illus. $4.50.

Coenraad Moorrees asks how useful the dentition is for the classification of races and specifically whether the characteristics of the teeth distinguish eastern from western Aleuts. These questions are only partially answered. Instead, he reports a survey of the teeth of 156 living Aleuts (all those available), a review of racial odontology, and a series of hypotheses for future study. In dental morphology the Aleuts resemble other Eskimos and Mongoloids. Eruption of teeth is precocious, by European standards. Lower jaws sometimes jut; they never recede. Dental decay has greatly increased following a change in the diet.

The author of the monograph is cautious in his interpretive sallies. His meticulous work therefore awaits further exploitation by other students of genetic and environmental factors in dental variation and disease.

GABRIEL WARD LASKER
Wayne State University

The Principles of Heredity. Laurence H. Snyder and Paul R. David. Heath, Boston, Mass., ed. 5, 1957. xi + 507 pp. Illus. $6.25.

This is the fifth edition of Snyder's well-known textbook pertaining to heredity. Like its predecessors, it is written in a simple and direct style. It should serve well any introductory college course in genetics. Its new features are primarily its format and its new sections, on pseudoallelism, on DNA, and on bacterial genetics. Unfortunately, it was published too early to include the recent evidence that the Y-chromosome of man may not carry as many genes as was previously thought. The chapter on human blood groups and their nomenclature has been brought up to date. Many new problems have been included.

HERLUF H. STRANDSKOV
University of Chicago

New Books

A History of Industrial Chemistry. F. Sherwood Taylor. Abelard-Schuman, New York, 1957. 483 pp. $7.50.

Laboratory Experiments in College Physics. Cicero Henry Bernard. Ginn, Boston, Mass., ed. 2, 1957. 335 pp. $4.25.

Medical Writing. The technique and the art. Morris Fishbein. Blakiston Div., McGraw-Hill, New York, ed. 3, 1957. 272 pp. $7.

Morphological Astronomy. F. Zwicky. Springer, Berlin, 1957. 303 pp. DM. 49.60.

Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His Systems of the World. Translated into English by Andrew Motte in 1729. The translations revised and supplied with a historical and explanatory appendix by Florian Cajori. University of California Press, Berkeley, 1947. 715 pp. $6.50.

The North American Deserts. Edmund C. Jaegers. Stanford University Press, Stanford, Calif., 1957. 318 pp. $5.95.

Principles of Plant Pathology. E. C. Stakman and J. George Harrar. Ronald, New York, 1957. 592 pp. $8.

The Teaching of Hygiene and Public Health in Europe. A review of trends in undergraduate and postgraduate education in 19 countries. WHO Monogr. Ser. No. 34. F. Grundy and J. M. Mackintosh. World Health Organization, Geneva, 1957 (order from Columbia University Press, New York 27). 254 pp. $5.

Antarctic Hazard. Ross Cockrill. Philosophical Library, New York, 1957. 230 pp. $4.75.

An Approach to Modern Physics. E. N. da C. Andrade. Doubleday, Garden City, N.Y., 1957. 266 pp. Paper, $0.95.

Basic Mathematics for Radio and Electronics. F. M. Colebrook and J. W. Head. Iliffe, London; Philosophical Library, New York, ed. 3, 1957. 359 pp. $6.

Beyond Freud. A creative approach to mental health. Camilla M. Anderson. Harper, New York, 1957. 288 pp. $4.

Colorimetric Analysis. vol. I, *Determinations of Clinical and Biochemical Significance.* Noel Allport and J. W. Keyser. Chapman & Hall, London, ed. 2, 1957. 424 pp. $9.

The Computing Laboratory in the University. Preston C. Hammer, Ed. University of Wisconsin Press, Madison, 1957. 236 pp. $6.50.

Craig and Faust's Clinical Parasitology. Ernest C. Faust and Paul F. Russel; assisted by David R. Lincicome. Lea & Febiger, Philadelphia, ed. 6, 1957. 1078 pp. $15.

Dairy Bacteriology. Bernard W. Hammer and Frederick J. Babel. Wiley, New York; Chapman & Hall, London, ed. 4, 1957. ix + 623 pp. $9.

Electron Microscopy. Proceedings of the Stockholm Conference, September 1956. F. S. Sjostrand and J. Rhodin, Eds. Academic Press, New York, 1957. 366 pp. $17.50.

From Sterility to Fertility. A guide to the causes and cure of childlessness. Elliot E. Philipp. Philosophical Library, New York, 1957. 120 pp. $4.75.

Glass Reinforced Plastics. Phillip Morgan, Ed. Iliffe, London; Philosophical Library, New York, ed. 2, 1957. 291 pp. $15.

The Human Brain. From primitive to modern. A. M. Lassek. Thomas, Springfield, Ill., 1957. 250 pp. $4.75.

Lens Materials in the Prevention of Eye Injuries. Arthur H. Kenney. Thomas, Springfield, Ill., 1957. 73 pp. $3.50.

Medical Radiation Biology. Friedrich Ellinger. Thomas, Springfield, Ill.; Blackwell, London; Ryerson, Toronto, 1957. 978 pp. $20.