University of Oklahoma, he was a consulting geologist who found some oil fields for others (but not for himself), he organized the Oklahoma Geological Survey, he was geologist for the National Park Service, and most important, he trained men who were successful when measured by the criteria of their colleagues. At times, he was doing all these things at once, at times separately, and he found time to publish 260 papers, write 572 reports on oil properties, and complete 251 reports for the Park Service!

Like many others, Gould was born, in 1868, in a log cabin in Ohio and grew up in a dugout on the Kansas prairie. And like hundreds of others, he had tough going to get through school. But the chance hearing of a lecture on geology determined his future, and he left no stone unturned, literally, to complete his education in this field and to pursue it usefully all his life.

While it is not clear whether Gould developed his book from a journal or from a diary, we know that geologists are great note-takers and file-keepers, and we may, thereby, trust the historical data. Some readers may feel that *Covered Wagon Geologist* is not great literature, but it is better than average and will certainly hold a reader's interest. This is fundamental stuff in the history of North American geology, even though it is somewhat provincial. I am grateful to Gould for his story, but even more grateful to a group of Oklahoma geologists who helped insure its publication.

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Handbuch der Physik. vol. 41, part 1, *Nuclear Reactions* 2, *Theory*. S. Flügge, Ed. Springer, Berlin, 1959. vii + 580 pp. Illus. DM. 145.

Gregory Breit (Yale University) and his collaborators—M. H. Hull, Jr., J. S. McIntosh, and R. L. Gluckstern—are the authors of the articles in this volume of the new *Handbuch der Physik*. As is well known, Breit has played an important role in the development of the theory of nuclear reactions. We note his early work on charged particle reactions and, of course, his derivation, with E. Wigner, of the justly celebrated Breit-Wigner formula; this formula not only has proved to be fundamental for the analysis of experimental results on resonance reactions, but its publication also initiated (simultaneously with N. Bohr) the important concept of the compound nucleus. This volume, like all Breit's work, is a careful, detailed, yet stimulating exposition of the subject; its approach is very strongly based on physical insight with a great deal of attention being paid to classical or semiclassical formulations.

The first and longest article, entitled "Theory of Resonance Reactions and Allied Topics" (pages 1–407), is by Breit. Its main purpose is twofold: (i) the more or less qualitative understanding of resonance reactions and (ii) the derivation and application of the Wigner R matrix theory. In the first category, we place his section B, "Elementary viewpoints and simpler models," which includes a discussion of resonances for central field two-body encounters, of his schematic model for the many channel situation, and an interesting semiclassical discussion. In section C, the Wigner development is given a very full treatment, and all details required for its use are included as far as I can see. Section D deals with a variety of topics: the optical model, stripping reactions, alpha particle decay, and heavy particle reactions.

Even in an article as long as this, it is inevitable that a number of topics are not included or are only briefly mentioned. These include the statistical theory of nuclear reactions (the Wigner statistical R matrix is briefly discussed) the theory of direct interaction (stripping and pickup are given a very detailed analysis), and gamma ray processes in resonance reactions (the dipole emission probability is calculated on the basis of the schematic model). Finally for the reader who may miss Breit's explicit mention of it, Breit's Γ is double the usual one.

The second article, "Coulomb Wave Functions" (pages 408–465), (written with M. H. Hull, Jr.) is a full and extremely useful summary of the various properties and approximation for these functions which are so important for the discussion of charged particle reactions. A complete list of all the available tables as of 1958 is given.

The third article (written with J. S. McIntosh) is entitled "Polarization of Nucleons Scattered by Nuclei" (pages 466–495). It deals with this subject in terms of the von Neumann statistical matrix and for the most part uses the methods of Wolfenstein. Scattering by spin 1/2 nuclei of spin 0 and spin 1/2 particles is considered in detail.

The fourth and final article (written with R. L. Gluckstern) is on Coulomb exitation (pages 496–558). The classical and quantum mechanical treatments are both discussed.

This volume is an important addition to the literature on nuclear reactions. It is fundamentally a review but differs from many reviews in that it is a critical review, well organized and useful, containing much that is original. Every physicist interested in nuclear reactions needs to read it.

One final comment which has to do with the editing of this series: it seems a pity that the subject index in this volume, as well as in the others I have examined, is so short and that there is no author index.

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New Books

Advances in Spectroscopy. vol 1. H. W. Thompson, Ed. Interscience, New York, 1959. 374 pp. $12.50.

Aerial Photographic Interpretation. Principles and applications. Donald R. Lueder. McGraw-Hill, New York, 1959. 477 pp. $17.50.

The Analysis of Variance. Henry Scheffe. Wiley, New York; Chapman and Hall, London, 1959. 493 pp. $14.

Comparative Anatomy of the Vertebrates. Theodore H. Eaton, Jr. Harper, New York, ed. 2, 1960. 391 pp. $6.

Dictionary of Economic Plants. J. C. Th. Uphof. Hafner, New York, 1959. 408 pp. $9.75. Brief descriptions, alphabetically arranged, of more than 6000 plants. Lists common and scientific names, reviews geographical distribution, and lists products derived from the plants.

Fundamentals of Guided Missiles. Air Training Command, U.S. Air Force, and Technical Staff, Aero Publishers. Aero, Los Angeles, Calif., 1960. 605 pp. $12.50.

Evolution and Christian Thought Today. Russell L. Mixter, Ed. Eerdmans, Grand Rapids, Mich., 1959. 224 pp. $4.50.

Handbook of Industrial Research Management. Carl Heyel, Ed. Reinhold, New York; Chapman and Hall, London, 1959. 530 pp. $12.

L'hérédité moléculaire. Conditions normales et pathologiques. Jean de Grouchy. Instituto Gregorio Mendel, Rome, 1958. 360 pp.

Industrial Complex Analysis and Regional Development. Walter Isard, Eugene W. Schooler, Thomas Vietorisz. Technology Press of Massachusetts Institute of Technology; Wiley, New York; Chapman and Hall, London, 1959. 311 pp. $8.75.