

Physical review. The hundred years

V S Letokhov

A Selection of Seminal Papers and Commentaries

(Ed. By H Stroke) (New York, Maryland: American Institute of Physics, 1996) 1266 pp. + CD ROM

Modern technique for recording, playback and transmission of information has profound effects not only on current journal editions but also on journal papers which have become the subject of history. I saw it while reading the collection under review. I have often read and reviewed interesting monographs, but I have never felt such pleasure as when I took this unique edition into my hands. It is really unique for many reasons.

First, it is an excellent selection of about 1000 (!) papers from *Physical Review* and *Physical Review Letters* for the time period, when most advances in nature sciences were made by physicists.

Second, the editor of the book Henry Stoke has managed to invoke outstanding scientists in various fields of science for selecting papers and writing commentaries. The list of their names deserves to be presented in full, giving an idea of the collection organization:

1. The Physical Review Then and Now (A Pais); 2. One Hundred Years of the Physical Review (V F Weiskopf); 3. The Early Years (M Hamermesh); 4. Atomic Physics (E Gerjuoy); 5. Nuclear Physics (H Feshbach); 6. Statistical Physics (J L Lebowitz); 7. Gravity Physics and Cosmology Physics (P J E Peebles); 8. Cosmic Radiation (J A Simpson); 9. Condensed Matter (P C Martin); 10. Plasma Physics (M N Rosenbluth); 11. Elementary Particle Physics Experiments (W K Panofsky and G H Trilling); 12. Particle theory (S Treiman); 13. Science and Technology (C H Townes); 14. Quantum Mechanics (S Goldstein and J L Lebowitz). The authors of commentaries have written very interesting scientific historic essays to each section of the book and supplemented them with photos of scientists well-known in relative fields of physics. The photos were borrowed from Emilio Sagre Videoarchives of American Institute of Physics. Take for example, Section 4, Atomic Physics. It is illustrated with photos of Pieter Zeeman, Robert Wood, Philip Morse, Niels Bohr together with Richard Tolman, John Sletner with colleagues, Gulio Rakah, Ugo Fano with Joseph Levinger, H Casimir, J Zacharias, Willis Lamb, Alfred Kastler and Hans Copferman, Martin Doutsch, Isidor Rabi, Polykarp Kush, Hans Dehmelt, Nicolaas Bloembergen with Norman Ramsey Peter Franken, and others.

Third, the collection is published in modern style. 200 papers are enclosed in a thick volume of 1266 pages, and all 1000 papers are presented in CD ROM form. It is a really first-class collection. You gain fast computer access to the

voluminous information of 75 journal pages and can print any of these papers. I tried to do this and got a print of the well-known paper 'Some Observable Effects of the Quantum-Mechanical Fluctuations of the Electromagnetic Field' (*Phys. Rev.* 74 1157–1167, 1948).

Of great use is the author index which enables you to estimate the contribution of scientists to physics, as viewed by the collection compilers. The record here belongs to E Vigner (13 papers in the collection for the period from 1933 to 1958), N Ramsey (13 papers, 1933–1980), H Bethr (12 papers, 1937–1952), J Schevinger (11 papers, 1937–1962), Ph Anderson (10 papers, 1949–1979), Ch Townes (10 papers, 1946–1968), R Feynman (9 papers, 1939–1977), etc. They are all classics of physics and Laureates of the Nobel Prize. The collection includes only 2 papers by A Einstein, which is obviously due to the fact that his main papers were published in European Journals in German (*Z. Phys.*, etc.) before the center of research moved from Europe to the USA in the 1930's. The same is true for the papers by N Bohr and E Fermi. This brings up a proposal to prepare (in the book and CD ROM form) collections of most important papers from *Z. Phys.*, *Nature* etc.

The collection contains several (5) papers by soviet physicists P Cherenkov (1937), G Flerov (1940), D Ivanenko (1943), I Pomeranchuk (1944), and V Arnold (1959). This short list naturally results from the limitations (and apprehension!) that were imposed in the USSR on the publication of papers in foreign journals up to the 70's. Papers by G Gamov are also included in the collection.

The number of authors (1700) in the author index enables the average number of the authors of one paper to be assessed as 1.7. Most papers came out in the first 50 years are written by one author, while in the succeeding years the number of authors is much greater. This is especially true for experimental papers.

The collection price (\$90) is quite acceptable not only to any library, but to many scientists as well. Mention should be made of most libraries of scientific literature in Russia, for which *Physical Review* and *Physical Review Letters* are prohibitive, except, may be, the period from 1965 to 1988. With this collection you can make an exciting travel through time over 100 years without raking among dusty bookshelves in libraries, but just sitting in an armchair and watching your computer, or even during a trip if you have a PC-Notebook with CD ROM.

In closing the review I wish to express my admiration for this edition issued by American Institute of Physics and scientists headed by H Stroke, who have made possible this publication.