

## Bibliography

### PHYSICS BOOKS IN THE PLANS OF FIZMATGIZ FOR 1960

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THE State Physics and Mathematics Publishing House (Fizmatgiz) will publish more than 50 books in 1960 on various problems of physics, totalling more than 1,000 signatures.\* It is not possible in a brief review to describe each of these books in any detail. We shall consider here the principal trends of the plan of publication of physical literature and those books which are to be published first.

This year a series of new text books and educational manuals on physics for universities and higher technical schools will appear. In 1958, the publishing house determined to increase appreciably the output of textbooks on general physics in order to do away with a situation in which the same textbooks appear on the book market year after year, and to make possible for the higher educational institutions of our country to choose textbooks that suit them more in outline and character of exposition. The authors and groups of authors were chosen (Academician L. D. Landau, Professors A. I. Akhiezer, E. M. Lifshitz, V. A. Fabrikant, M. I. Kor-sunskii, A. I. Kitaigorodskii, O. M. Todes, etc.) who have embarked on writing new textbooks of general physics (both in single volume and in three-volume sets) suitable for different programs of the higher technical schools. In 1958-1959, the press published two volumes of the three-volume course of general physics of Lecturer G. A. Zisman and Professor O. M. Todes; a single-volume text of general physics ("Introduction to Physics") by Professor A. I. Kitaigorodskii was also published.

Continuing this work, the press will complete in 1960 the publication of two three-volume physics texts. The third volume of *Course in Physics* of Professor K. A. Putilov will be published, containing the sections on optics, atomic physics, and nuclear physics (40 signatures). Professor V. A. Fabrikant wrote the section on optics of this book. There will also appear the third volume of the *Course of Physics* by G. A. Zisman and O. M. Todes, which contains similar sections. The publishing house will print a new text of general physics for higher technical schools in three volumes, written by a group of teachers of the Moscow Power Institute under the editorship of V. A. Fabrikant. One of the features of this text will be the inclusion of problems for the use of the students.

The press will publish the two-volume text of *physical electronics* written by Lecturer V. I. Gaponov of the Gorkii University. The first volume (35 signatures) contains the fundamentals of physical electronics. It includes the motion of charged particles in

\*A signature contains usually 16 pages—Tr.

electric and magnetic fields, electron and ion emission, and electrical currents in gases. In the second volume (40 signatures) electronic and ionic apparatus will be described (electron microscopes, photocells, electron-optical converters, and vacuum tubes, including high-frequency electron tubes, gas-filled tubes, thyratons, etc.) and also semiconductor devices. In the description of these devices, principal attention will be paid to the physical picture of the phenomena involved. Problems of the design, construction and technology will occupy a comparatively modest place.

A text will be published in *electronics and radio engineering for universities* (25 signatures) written by Lecturer A. P. Molchanov on the basis of lectures which he read over a period of several years in the physics faculty of the Leningrad State University. The text contains the necessary theoretical material, a description of fundamental electronic and radio devices, circuits, and methods of practical application. Fundamental emphasis in the text will be on the explanation of the physical picture of the phenomena that take place in the apparatus under study. At the present time a course of electronics and radio technology is introduced in all universities of our country; therefore the requirement in such school equipment is sufficiently great.

A one-volume text on *atomic physics for higher technical schools* written by Professor L. N. Dobretsov will be published. In this small book (20 signatures) the author gives an account of the fundamental experimental and theoretical data on the structure of atoms and of atomic spectroscopy, and also the basis of quantum mechanics and its applications to the physics of solids.

A book by staff members of the Moscow Engineering Physics Institute, Lecturer I. P. Stepanenko and Candidate of Technical Sciences K. É. Érglis, "*Electronic Amplifiers*" (30 signatures), describes in detail the physical bases of the action of various types of amplifiers including semiconductor amplifiers, and the most frequently used circuits with such amplifiers.

One should also mention the new text "*Applied Physical Optics*" by Professor A. A. Shishlovskii of the Kiev University (40 signatures). It consists of three parts. In the first part there are described the general principles of the operation of optical apparatus and its construction; in the second, different light measurements; in the third, optical methods of chemical analysis and chemico-technical control (luminescent analysis, emission spectral analysis, absorption analysis, polarimetry, application of Raman spectra,

etc.). Applications are also described of optical methods in automation control and the direction of various technological processes. In the textbook literature of physics, there are no books devoted to the structure of molecules — a problem which takes on great importance in connection with the development of contemporary chemistry and molecular spectroscopy. In order to fill this need in part, the Publishing House will present a second, completely revised edition of the book of Academician V. N. Kondrat'ev "Structure of Atoms and Molecules" (34 signatures; the first edition of this book appeared in 1946).

A decision has been made to republish the widely known textbook "Atomic Physics" of Professor É. V. Shpol'skiĭ. It will be republished in three volumes (Volume I — Introduction to Atomic Physics; Volume II — Foundations of Quantum Mechanics and the Structure of the Electronic Shell of the Atom; Volume III — the Atomic Nucleus). All volumes will be revised by the author. The third volume will undergo a particularly large revision. Publication of all three volumes is expected in 1960 — 1962.

The second edition of both parts of "Collection of Problems for a General Course of Physics" for physics faculties of universities will also appear (the first volume under the editorship of Professor S. É. Khaikin, the second under the editorship of Lecturer D. V. Sivukhin).

At the present time the Publishing House is bringing out a new edition of the basic series on theoretical physics by Academician L. D. Landau and Professor E. M. Lifshitz, which has gained widespread fame not only in our own country but also abroad. The set will consist of the following nine volumes: I — Mechanics, II — Field Theory, III — Quantum Mechanics (Nonrelativistic Theory), IV — Relativistic Quantum Mechanics, V — Statistical Physics, VI — Hydrodynamics, VII — Theory of Elasticity, VIII — Electrodynamics of Continuous Media, IX — Physical Kinetics. The Press intends to publish this series in the order mentioned. Two of the nine volumes (Volume IV — Relativistic Quantum Mechanics and Volume IX — Physical Kinetics) have never appeared and will be written specially for this edition. The remaining seven volumes will appear in substantially revised form. The first volume of this series — Mechanics — which was essentially rewritten, appeared in 1958. In 1960 there will appear the second volume — Field Theory. It also will differ considerably from the previous edition of this book published in 1948. At the present time the authors are preparing the third volume and are simultaneously working on the fourth volume.

After a five-year interruption, the Press resumed a year and a half ago publication of the series of books that had proved very popular in the past: "Contemporary Problems of Physics." The purpose of this series was to cover the most important achievements of modern physics in comparatively short review monographs, reaching not only the narrow circle of specialists in a

given area, but so far as possible all physics specialists — senior and graduate students as well as scientific workers. The series will appear under the general editorship of the staff of the journal "Uspekhi Fizicheskikh Nauk." Up to 1960, two books in this series have appeared (Corresponding Member of the U.S.S.R. [Acad. of Sci.] M. A. Markov, "Hyperons and K-mesons" Doctor of Physico-Mathematical Sciences Yu. N. Ryabinin, "Gases at High Densities and Temperatures"). Four new volumes will appear during the current year.

In the first of these — the book by Academician A. I. Alikhanov, "Recent Studies in Beta Decay," (7 signatures), experimental investigations in the field of beta decay carried out in 1957 — 1959 are considered; these have helped establish the nonconservation of parity in weak interactions and include the research work of the author and his collaborators.

The second book — "Controlled Thermonuclear Reactions" by Academician L. A. Artsimovich (18 signatures) — is devoted to one of the most important problems of modern physics. Detailed analyses are given of the properties of high-temperature plasma, its behavior in strong magnetic fields, and also the different forms of radiation generated in the plasma. Results obtained in the U.S.S.R., U.S.A., England and other countries on the properties of powerful short-duration pulsed discharges, intense discharges in toroidal chambers, and heating of plasma in traps with magnetic plugs and in traps with limited drift of particles are all considered.

The third book — "Ferromagnetic Resonance" (12 signatures) — was prepared by a group of authors under the editorship of Corresponding Member of the U.S.S.R. Academy of Sciences S. V. Vonsovskii. It considers the nature of magnetic resonance in ferromagnets and its phenomenological theory, relaxation processes, peculiarities of ferromagnetic resonance in metals and in semiconductors, the use of ferrites for generation and amplification, etc.

The fourth book is a translation — "Bioenergetics" of the well-known biochemist Albert Szent-Györgyi (6 signatures) — and represents an interesting attempt to explain a whole series of phenomena taking place in living organisms by means of a hypothesis regarding the presence of two different forms of energy ("fixed" energy of valence bonds, stored in chemical compounds, and "movable" energy, which migrates in biochemical processes) and a hypothesis on the special structure of water found in a bound state in biological objects. On the basis of these hypotheses, the author considers the mechanism of the work of muscles, the depolarization of cellular membranes, the action of medicinal substances, and the origin of a whole series of illnesses including cancerous tumors. In the words of Academician A. N. Terenin who writes the preface to the translation, the book of Szent-Györgyi "is an absorbing 'scientific poem,' which wins over the reader by its sincerity and introduces the uninitiated to a number of interesting problems of biology."

Taking into account the continuously growing role of semiconductor devices and instruments in modern science and technology, the press will publish in 1960 a series of monographs "The Physics of Semiconductors and Semiconductor Devices." The purpose of this series is to give a review of progress attained, and to point to the outstanding experimental and theoretical problems in the physics of semiconductors, which await their solution. The books of this series should help broaden the front of scientific investigation in the region of the physics of semiconductors in our country, and raise the scientific level of specialists working on the development and construction of various semiconductor instruments.

This year the following titles in the series "Physics of Semiconductors and Semiconductor Devices" will appear:

Candidate of Technical Sciences **A. G. Gurevich**, "Ferrites at Microwave Frequencies" (16 signatures). The principal aim of this monograph is to convey to the reader a correct physical presentation of processes taking place in ferromagnetic semiconductors, electrodynamic systems with ferrites, and the like. The book consists of two parts. In the first part there is considered the microscopic theory of the properties of ferrites in microwave frequency fields; in the second — the macroscopic electrodynamic systems (waveguides and resonators), containing magnetized ferromagnetic semiconductors.

Candidate of Physico-Mathematical Sciences **B. I. Boltaks**, "Diffusion in Semiconductors" (20 signatures). This is the world's first monograph on a very important problem of the physics of semiconductors. In the book the fundamentals of the theory of diffusion processes, methods of measurement of diffusion coefficients, and actual results are given in detail. Principal interest attaches to chapter VI, where a review is given of the specifically semiconductor methods of measurement, to the chapters devoted to the results of measurements, and to the final chapter, which contains material on the solubility of impurities in germanium and silicon.

Professor **F. F. Vol'kenshtein**, "Electronic Theory of Catalysis on Semiconductors" (7 signatures). This small book is the first monograph in the new and important application of semiconductors that lies on the borderline between physics and chemistry. A concise exposition is given in it of the modern state of the theory of catalysis on semiconductors and a review of the fundamental experimental researches in this region. In attempting to make the book accessible to a much wider circle of physicists and chemists, the author has employed a minimum of mathematics, paying especial attention to the exposition of the physical fundamentals of the theory.

Candidate of Physico-Mathematical Sciences **I. M. Tsidil'kovskii**, "Thermomagnetic Phenomena in Semiconductors" (12 signatures). In this monograph, the theoretical and experimental data are generalized according to a new method of investigation of the elec-

trical properties of semiconductors, in the development of which a large amount of credit belongs to the author. Thermomagnetic phenomena have been known for more than 80 years; however, until recently they have almost never been used for the study of the properties of matter. In addition, it is shown that they can be used for the investigation of semiconductors with no less success than galvanomagnetic phenomena, which are widely employed at the present time. The monograph contains the theory of thermomagnetic phenomena in isotopic semiconductors, a review of the fundamental experimental data, and a detailed consideration of the possibilities of determination of semiconducting parameters and the character of the interaction of current carriers with the crystalline lattice through a fundamental investigation of thermomagnetic effects.

As before, the press will pay considerable attention to the widely known series "The Physico-Mathematical Engineering Library." This year seven new books will appear in the series, of which four will be on physics. Here we shall mention first the book by **R. Sproull**, "Modern Physics for Engineers" (26 signatures, translated from the English under the direction of Professor **B. N. Finkel'shtein**). The author attempts to give the engineer the physical bases of phenomena used in modern engineering practice, making use of simple mathematics. The book emphasizes the newest achievements of physics that have gained great practical application (electron optics, semiconductors, television, new alloys, radioactive isotopes, atomic power, etc).

In the next book — by Doctor of Physico-Mathematical Sciences **M. M. Umanskiĭ**, "Apparatus for X-ray Structure Analysis" (15 signatures) — a detailed review is given of modern apparatus used for various purposes of x-ray structure analysis, and the methodology of investigation is described. Cameras for the analysis of single crystals and polycrystals are analyzed, then cameras for work at high and low temperatures. The book makes use of the rich experience of many years of investigation of the author in the laboratory of x-ray structure analysis of the physics faculty of Moscow University. Undoubtedly, it helps to raise the scientific level of x-ray structure study in research and industrial laboratories.

In the book of Candidate of Technical Sciences **L. I. Rabkin**, "High Frequency Ferromagnets" (26 signatures) different ferromagnetic materials are considered (thin wire metallic ferromagnets, ferrites, magnetodielectrics), their behavior in high frequency fields and the application of these materials for various practical purposes. Among the ferrites, chief attention is paid to ferrites with rectangular hysteresis loops, which open up new possibilities in automation and computing techniques. A special chapter of the book is devoted to high-frequency magnetic circuits.

In the book of Candidate of Technical Sciences **V. V. Nalimov**, "Application of Mathematical Statistics in the Analysis of Matter," there is an attempt at a construc-

tion of a general theory of analysis of matter on the basis of probability theory. By using methods of dispersion, regression and correlation analyses, the author breaks up the problems of the reproducibility of the results of statistical analysis of matter and their stability in time, investigates the effect of different factors on the results of analysis, considers calibration graphs and their properties, etc. There are many examples in the book, along with concrete numerical calculations, which illustrate the fundamental laws of statistical analysis of matter.

In 1960, the Press will publish a series of individual monographs on theoretical physics, nuclear physics, electronics, optics, and other branches of modern physics. We shall now consider some of these books.

A great deal of interest attaches to the translation of the book of the well-known American theoretical physicist **David Bohm**, "**Quantum Theory**" (45 signatures), which is edited by Corresponding Member of the U.S.S.R. Academy of Sciences **S. V. Vonsovskii**. The book is an original presentation of nonrelativistic quantum mechanics. In contrast to other books, the author emphasizes the objective character of quantum mechanical laws, shows the connection of the separate concepts of quantum and classical mechanics. The book is distinguished by its great depth of physical content, successfully combined with the approachability of its presentation which makes it quite suitable for a first acquaintance with the foundations of quantum mechanics.

Also very interesting is the monograph "**The Green's Function Method in Statistical Mechanics**" (15 signatures) written by Doctors of Physico-Mathematical Sciences **V. L. Bonch-Bruevich** and **S. V. Tyablikov**. It is devoted to the method of two-time temperature Green's functions in the many-body problem and its application to the solution of problems of quantum mechanics. This method was shown to be effective in the direct solution not only of equilibrium but also of non-equilibrium problems of quantum mechanics. In the first three chapters there is given an exposition of the general spectral theory of nonrelativistic temperature Green's functions, which depend on several moments of time. The next four chapters are devoted to concrete application of this method to various problems of physics of condensed media (electron plasma in a solid, interaction of electrons with phonons, ferromagnetism at finite temperatures and the theory of a non-ideal Bose gas at temperatures below the condensation point).

The translation of the monograph of **H. Bethe** and **E. Salpeter**, "**The Quantum Mechanics of Atoms with One and Two Electrons**," will appear under the editorship of Professor **Ya. A. Smorodinskii**. The first edition of this book (**H. Bethe**, "**Quantum Mechanics of Simplest Systems**") appeared in Russian in 1933. The majority of theoretical physicists of the older generation were taught by this book; however, it has long been a bibliographical rarity. It contains concrete methods

of solution of the problems of quantum mechanics of atoms that have become classical. The translation was carried out from the recent English edition which was considerably rewritten by the authors.

Another classical monograph — **P. Dirac**, "**Principles of Quantum Mechanics**" (20 signatures) will also appear. The translation under the editorship of Academician **V. A. Fock** was completed from the latest 1957 English edition.

A monograph by Professor **O. I. Leipunskii**, **B. V. Novoshilov** and **V. N. Sakharov**, "**Propagation of Gamma Quanta in Matter**" (11 signatures) is being prepared for publication. In it the authors have generalized the existing theoretical and experimental data on the penetration of gamma quanta through absorbing media with account of multiple scattering. In the book the Monte Carlo method has been successfully applied and a large number of tables and graphs have been introduced which permit one to carry out rigorous calculations of protective apparatus which is so important for all phases of atomic power.

In the small book of **Bonetti**, **Scarsi**, et al. "**Nuclear Emulsions and Autoradiography**" (3 signatures), translated by Candidate of Physico-Mathematical Sciences **A. O. Vaïsenberg**, the reader will find fundamental practical information necessary for research with nuclear emulsions on small and large accelerators and data on the very widespread of autoradiography.

In the monograph of Corresponding Member of the U.S.S.R. Academy of Sciences, **V. L. Ginzburg**, "**Propagation of Electromagnetic Waves in Plasma**" (30 signatures) a large number of problems is considered connected with the propagation of electromagnetic waves in homogeneous and inhomogeneous isotropic and magnetoactive plasma. These problems are important for the theory of propagation of radio waves in the ionosphere, the solar atmosphere and interstellar space, and also for the physics of plasma obtained under laboratory conditions. The principal part of the book is devoted to microprocesses in plasma, and also to physical phenomena connected with the propagation, damping and generation of electromagnetic, magnetohydrodynamic, and plasma waves. The great value of the book is that a great deal of attention is paid in it to the qualitative consideration of phenomena and the limit of applicability of the methods of calculation employed.

The book of Professor **S. A. Al'tshuler** and Professor **B. M. Kozyrev**, "**Electronic Paramagnetic Resonance**" (20 signatures) is the first domestic monograph on the problems of paramagnetic resonance. The book comprises all the fundamental sides of this phenomenon: theory and experimental data on the spectra of paramagnetic resonance in different types of paramagnetics; problems connected with the shape of the line of paramagnetic resonance and the phenomenon of paramagnetic relaxation; different applications of electron paramagnetic resonance to the theory of solid state, nuclear physics, chemistry and radiophysics.

The book is very important and its appearance fills an important gap in Soviet and world scientific literature.

Professor S. D. Gertsriken and Doctor of Technical Sciences I. Ya. Dekhtyar have written a monograph on a very important question — **diffusion in metallic alloys** (23 signatures). The diffusion mobility of atoms in solids determines many of the physical and technical properties of the solid. Diffusion effects are recrystallization, phase transitions, high temperature creep, rupture of solids at high temperature, etc. In the given monograph, a wide range of problems is considered: methods of investigation of diffusion (in particular, much attention is paid to the use of radioactive isotopes); theories and mechanisms of diffusion processes; the connection of diffusion with interatomic interactions and defects of crystalline structure; the role of diffusion and the problems of heat resistance, elastic strength, creep, production of protection devices etc.

An interesting book coming into print is that by the well-known French physicist, L. Brillouin, **"Science and Information Theory"** (21 signatures) in the translation by Corresponding member of the Ukr. S.S.R. Academy of Sciences A. A. Kharkevich. In it the fundamentals of information theory, its place in contemporary science, the possibilities and perspectives of its application are presented in a lively and absorbing form suitable for non-specialists. Along with an exposition of problems which have already become classical (the basic concepts of information theory, the problems of amplification of the carrying capacity of communication lines, the problem of interference-rejection, etc.) the author considers in detail the connection of information theory with statistical physics and thermodynamics. Special chapters are devoted to the problem of measurements in physics, to the measurement of spatial and temporal intervals, to the connection between information theory and the uncertainty principle, and also to problems of computation and computers.

In 1958, the Soviet scientists Professor P. A. Cerenkov, Academician I. E. Tamm and Corresponding Member of the U.S.S.R. Academy of Sciences I. M. Frank were awarded the Nobel prize in physics for the discovery and investigation of phenomena known as the Vavilov-Cerenkov effect. In the book **"Nobel Lectures"** the press publishes the lectures read by the laureates in Stockholm on December 11, 1958, upon reception of the Nobel prize. In a preface to the book, a paper is given by B. M. Bolotovskii on the history of the discovery of the Vavilov-Cerenkov effect and biographical information on the laureates.

In 1960, the Press will publish four monographs on different problems of optics. In the monograph **"Spectral Analysis of Atomic Materials,"** written by a group of Leningrad scientists under the direction of Professor A. N. Zaidel' (40 signatures), methods are considered of spectroanalysis of materials of a high de-

gree of purity and to the determination of isotopic constitution.

In the monograph of Professor Yu. N. Gorokhovskii, **"The Photographic Process in its Spectral Aspect"** (20 signatures), detailed consideration is given to the spectral properties of black-and-white and color photographic materials and to methods of experimental determination of the properties. The spectral properties of colored many-layered photographic materials, contemporary methods of measurements of color fields, and designs for such apparatus are also described in the book.

Two other monographs on optics are translations. These are **"Technical Optics"** by Martin (18 signatures) and **"Phase Contrast and Interference Microscopes"** (10 signatures) by Franson. Both books are being translated under the editorship of Professor G. G. Slyusarev. The first of these is devoted to the principal optical devices (lenses, microscopes, telescopes, photographic objectives, etc), and also to problems of photometry, testing of optical systems, and so forth. The second book contains a description of new methods of contemporary microscopy — researches with phase contrast and interference microscopes.

In finishing the brief survey of the individual monographs, let us mention one other book — H. Lamb, **"Dynamical Theory of Sound"** (20 signatures). It was written more than thirty years ago, but is today an excellent aid to the student of physical acoustics. This book, which has stood the test of time, is being translated under the editorship of Doctor of Physical Sciences M. A. Isakovich.

Recently the Press has made a great effort to expand the publication of reference literature, the need for which is very great and has long been quite unsatisfied. A special office of reference literature has been organized in the press which will permit even this year an increase several fold in the publication of handbooks of physics and mathematics. This year the press will bring out about 15 general and special reference works, three of which are devoted to various problems of physics. Among these we first note **"A Short Physico-Technical Handbook"** in three volumes under the general editorship of Professor K. P. Yakovlev. The purpose of this handbook is to give other disciplines which are important for engineering. The handbook is designed for students and engineering-technical workers. In the first volume of the handbook which will appear this year there are sections devoted to higher mathematics and physics, fundamental information about chemistry, dimensional analysis, different systems of units which are applicable in physics and technology.

For the first time in many years the press will publish an **"Elementary Physics Handbook"** (10 signatures). It was prepared by N. I. Koshkin and M. G. Shirkevich (edited by D. I. Sakharov) and contains fundamental information in all branches of general physics to an

extent going somewhat beyond the framework of the program of the secondary school. In each section there are fundamental definitions, laws and formulas with a short explanation of their physical content, and also reference tables and graphs.

A translation is being prepared, by Professor V. I. Levin, of the sixth German edition of the widely known reference handbook of E. Madelung, "**Mathematical Methods of Physics**" (30 signatures). In the first part of this handbook there are data from all sections of higher mathematics that have application in physics. In the second part fundamental information is given from all sections of theoretical physics.

There will also appear a "**Handbook of X-ray Structure Analysis**" (40 signatures) by L. I. Mirkin under the direction of Professor Ya. S. Umanskiĭ. The essential methods of obtaining and analyzing x-ray photographs of polycrystalline bodies are considered in detail.

Mention must also be made of still another translation of a German book—G. Niese, "**Young People's Physics**" (16 signatures). The author acquaints his readers with the physical foundations of modern technology in very original fashion. Starting out from ordinary well-known examples from daily life and industrial activity, he brings his reader to an understanding of the basic physical laws and acquaints him with the widespread practical applications of these laws. In Germany this book has already undergone seven editions.

In 1960 the Press will publish more scientific-popular books on physics than in the previous year. Among these we first of all want to mention the book of Academician A. F. Ioffe, "**My Encounters with Physicists**" (6 signatures). A. F. Ioffe has met many important physicists throughout the world. He knew well Roentgen and Planck, Einstein and Langevin, delivered a lecture for Rutherford and attended the Marie Curie Institute, talked with Wood and Langmuir, carried on scientific discussions with Millikan. Among the scholars discussed in this book, the reader will find Frederick and Irene Joliot-Curie, Dirac, Fermi, Vannevar Bush and many others. The book is well illustrated by rare photographs. Written in a simple and lively style, it will be read with interest not only by physicists but by all readers who are interested in the development of science and the life of prominent scientists.

One should also mention the very interesting and original work of the great American specialist in the field of electronics and microwave techniques, John Pierce, "**Electrons, Waves, and Messages**" (20 signatures, translated from the English by Lecturer M. D. Karasev). The book is devoted to electronics both as a science and as to its application in contemporary technology, chiefly in communication and radio location. In it there are also considered the fundamental problems of information theory. The book is easily readable and entertaining. The author willingly makes historical digressions in it, sketching the research of physicists in the discovery of particular phenomena.

He also attempts to uncover and reveal to the reader the deep connection of the laws of electronics with other phenomena of nature. Throughout the whole book there is a clear stamp of the individuality of the author which reveals itself both in the selection of the material and in the character of the presentation. It is not without reason that in speaking of the reasons impelling him to write this book, Pierce points to his enthusiasm and love for science and also to the concern that he had "regarding books which attempt to give a picture of science without communicating any of its substance."

An interesting and different translation is the scientific-popular book of Glenn Seaborg and Evans Valence, "**The Elements of the Universe**" (16 signatures, translated from the English under the editorship of Academician A. P. Vinogradov) which is an interesting story of how the transuranic elements were produced.

The book "**What Do Physicists Think**" (16 signatures) is a collection of translations from the popular scientific articles of the American journal "Scientific American" which are devoted to the most important problems of modern nuclear physics. The authors of these papers are outstanding specialists who have made great contributions to the problems under consideration. For example, the article on the antiproton was written by Segré, on elementary particles by Gell-Mann and Rosenbaum, on pions by Marshak, on atomic nuclei by Peierls and Hofstadter. In all there are 14 articles in the collection. They are beautifully and originally illustrated and as a collection they allow the reader to obtain a picture of contemporary physics.

In 1946, the Press published the book of W. Seabrook, "**Robert Williams Wood (Modern Magician of the Physical Laboratory)**," in translation under the editorship of Academician S. I. Vavilov. In his preface characterizing this book, Vavilov wrote: "This is an extensive American news story about Wood, his life, his science, his inventiveness, his adventures and his family" (incidentally, attentively read through and corrected by Wood himself). The book is read with never-flagging interest, since Wood is represented in it as a many sided, fascinating man. The second edition of this book, which has already become a bibliographical rarity, will appear in 1960.

In the book of Candidate of Physico-Mathematical Sciences B. S. Ratner, "**Accelerators of Charged Particles**" (7 signatures) a popular discussion is given of the production and use for various scientific investigations of particles of high energy. The author has devoted great attention to the perspectives of the development of accelerator technology and the problems of further research of atomic nuclei and elementary particles.

The book by A. I. Zhukov, "**Introduction to the Theory of Relativity**" fulfills a longstanding gap in our popular scientific literature. The author successfully avoids the difficulties connected with complicated mathematical presentations of the theory and makes

the book accessible to readers acquainted with mathematics only in the program of the school course. In this case it is important to point out that the book considers not only special but also general relativity and non-Euclidean geometry.

The book by Candidate of Physico-Mathematical Sciences **M. S. Sominskiĭ**, "**Semiconductors**" (16 signatures) differs from other books published on this theme by the much more detailed presentation and by the complete range of the topic. In addition to the information usually given on semiconductors and how they are used, the book gives a review of semiconductor materials and their properties, and describes several technological processes and methods of measurement of the fundamental characteristics of semiconductors. All this makes the book by Sominskiĭ an unusual introduction to the physics of semiconductors.

The book of Candidate of Agricultural Sciences **I. B. Revut**, "**Physics in Agriculture**" is the first popular scientific book on a new science—agrophysics, the role and importance of which increases with each passing day. In it are considered physical phenomena and processes which are important for maintaining the productivity of the soil. The reader will find in this book recommendations which will aid in the solution of practical problems in the field of agriculture.

The following books will also be reissued: Doctor of Physico-Mathematical Sciences **V. A. Krasil'nikov**, "**Sonic and Ultrasonic Waves in Air, Water and Solids**";

Professor **G. G. Slyusarev**, "**On the Possible and Impossible in Optics**," and both volumes of "**Entertaining Physics**" by **Ya. I. Perel'man**.

The plan of publication for 1960 in physics contains a considerable number of books which are valuable and useful for our science and technology. However, there are among them not many of the more necessary books, and certain phases of modern physics (molecular physics, magnetism, solid state physics, polymer physics, geophysics, biophysics, etc) are either not at all represented in the plan or are covered only by a single title. The fact is that the programs which the Press laid out not very long ago no longer correspond to the extraordinarily growing role of physico-mathematical sciences in the development of science and technology of the whole national economy of our country. The problem set up by Fizmatgiz in 1959 for participation in the seven year plan — to increase sharply the volume of publication of physico-mathematical literature — required the drawing up of a number of organizational measures on the reorganization of the Press, increase its printing capacity, increase the number of pages etc. These have unfortunately not been solved to date, in spite of the support of the scientific community. Therefore the Press cannot in full measure satisfy the constantly increasing demand for physico-mathematical literature.

Translated by R. T. Beyer