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PROFESSOR BEDŘICH HAVELKA IS SIXTY - FIVE

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Professor Ing. RNDr. Bedřich Havelka, Dr.Sc., the most prominent living optician in Czechoslovakia, the Vice-Chairman of the International Commission for Optics of the International Union for Pure and Applied Physics, and the Head of the State Scientific Research in Czechoslovakia in the field of optics and related branches, is celebrating his 65th anniversary on July 17th, 1972.

Palacký University in Olomouc, Czechoslovakia, holds Prof. Havelka for its respected teacher in the field of theoretical physics and for the pedagogue of a new generation of Czechoslovak opticians. The fact that he works at the same time both as a university professor and the head of State Scientific Research in his field gives the best evidence both of his exceptionally high scientific education and of his admirable working efforts.

Prof. Havelka has not only been a university teacher and theoretician, but also a founder of modern Czechoslovak optic industry. For fruitful work in both these demanding fields talent, diligence as well as broad education are necessary. The breadth of Prof. Havelka's education is really admirable. He not only studied mathematics and physics at the university, but also achieved good command of many foreign languages. Few of his colleagues know that besides graduating at the university he studied engineering, insurance mathematics and law and in his younger days also worked as a scientific worker in astronomy and geodesy.

Prof. Havelka's education is the result of his persistence as well as assiduity. He was born on July 17th, 1907 at Protivanov in the Drahany Highlands (north of Brno) and brought up in a family of seven children. During his secondary school studies at Boskovice he was obliged to earn his own living. After graduating from the secondary school he entered the Faculty of Science of Masaryk University in Brno where he finished his study of mathematics and physics in the year 1932. Later he was preparing his doctor's thesis in mathematics at the same time studying insurance mathematics at the German College of Technology in Brno and law at the Czech university. Besides that he was engaged in scientific work at the Institute of Higher Geodesy. After taking his degree of science at the university in 1935 Prof. Havelka begins his independent work in research, pedagogy and organization.

In 1935, when offered both the post of an assistant at a college in Brno and that of a physicist in the new Czechoslovak optic industry, Prof. Havelka chose the latter possibility being attracted by new problems in optics and their far-reaching

prospects. He started his work in the recently established enterprise Optikotechna in Přerov (now Meopta, national corporation), and was put in charge of the computer department and the department of optic construction. These were the years when the defence system of the Czechoslovak Republic was being strengthened. At that time the optic enterprise in Přerov belonged to the ammunition works Zbrojovka in Brno. In 1937 Prof. Havelka was sent to Paris to study at the Optical College. He was given the condition of completing the three-year study of the school in one year as it was necessary to use his knowledge and experience in optic construction as soon as possible. Prof. Havelka succeeded in finishing his study in one year and graduating with honours as engineer of optics, which was something quite unusual in a forcing student in Paris.

Prof. Havelka's activities in Optikotechna have been characterized best by Prof. Dr. Engelbert Keprt, the former director of Meopta, in the journal „Fine Mechanics and Optics“ by the following words: „During the last 18 years Prof. Havelka has accomplished a work which can be characterized without exaggeration as the foundation of independent, scientific Czechoslovak constructive as well as technical optics on such a level that it may successfully compete with renowned foreign establishments“.

In those years Prof. Havelka began his work as a pedagogue. He paid his everyday attention to the problem of increasing the qualification of his younger cooperators, organized a series of courses for designers and technicians in optics, taught at a works school and, in 1948–1952, gave his lectures on optics and the theory of electromagnetic field at the Faculty of Pedagogy of Palacký University in Olomouc as well as on geometric optics at the College of Technology in Brno. Although the possibilities of publishing papers written by an industrial scientific worker are usually limited by the requirements of professional secrecy, Prof. Havelka nevertheless published about 30 of his works in physics in the period of his scientific research. Many of these are well-known and have the extent of complex monographs. Among them we can find several textbooks for various categories of students.

Prof. Havelka worked in the Czechoslovak optical industry till 1952. In that year the Government founded a series of institutes forming constituent parts of the Czechoslovak Academy of Sciences. The aim of these institutes is to do the basic scientific research work. In the field of optics there was founded the Laboratory of Optics in Prague and Prof. Havelka was asked to become its head. He accepted the offer and during the following 11 years brought much self-sacrifice for the advancement of this institution. Owing to the housing problem in Prague Prof. Havelka was obliged to continue living with his family in Přerov and travel regularly to Prague. Nevertheless, under his management, there arose a theoretically founded scientific institution which has achieved significant success especially in the theory of optical imaging, in the construction of unique optical apparatuses (e. g. mirror microscope) and in the field of infra-red spectroscopy. In this period there was published a number of his works dealing with the theory of optical imaging, the optics of thin layers, and two monographs: „Geometrical Optics“ in two volumes and „Spectral Analysis I — Construction of Spectral Apparatuses“. These are basic works of contemporary Czechoslovak scientific literature in the field of optics, fully covering the whole range of problems from physical principles to the technical application of scientific knowledge. They summarize an extensive experience and give an original solution of a number of special problems. Prof. Havelka's scientific work was appreciated by awar-



ding him the title of the „Doctor of Science“ which is given to the most prominent workers in Czechoslovak science.

Since the beginning of the year 1954 Prof. Havelka has been lecturing as a university professor at Palacký University in Olomouc. Besides that he continued his work of the external head of the Laboratory of Optics at the Czechoslovak Academy of Sciences. Giving lectures to students he soon won their respect by his profound knowledge, exceedingly good memory, and the breadth of his

themes. At first he lectured on experimental physics at the recently established Department of Physics. He was mostly engaged in dealing with the problems of molecular physics, electricity and magnetism, optics and spectroscopy. Later on, when four-year study of physics had been established, he gave his lectures on theoretical physics in full extent all by himself for many years. Most of all he read lectures on theoretical mechanics, thermodynamics, statistical physics, electrodynamics, the theory of relativity, quantum mechanics and the theory of atomic nucleus.

Prof. Havelka represents an exceptional case of a university professor who has mastered theoretical physics in such extent. Therefore he was appointed university professor of theoretical physics and after the establishment of an independent Department of Theoretical Physics and Astronomy in 1961 he became the chief of the department. At the same time he was holding his lectures on optics at the Faculty of Science at the university in Brno. When a special curriculum in optics and fine mechanics had been established at Palacký University in Olomouc he gave lectures to specialists on optics. Full-time work consisting of more than 12 lessons a week became the rule in Prof. Havelka's teaching activities at the Faculty of Sciences in Olomouc. In spite of that he wrote about 40 additional works, some of which have become standard university textbooks consisting of more than 600 pages. His work may without exaggeration be called heroic.

At present, bereaved of his wife, Prof. Havelka considers his work to be the only *raison d'être* of his life. At the Faculty of Science of Palacký University in Olomouc he is building up the Laboratory of Optics, aimed at solving theoretical problems in optics, especially the theory of coherence, the theory of optical imaging, holography and theoretical spectroscopy. Under Prof. Havelka's guidance the staff of his younger cooperators have made great advances and significant achievements known throughout the world, which may be illustrated by several hundreds of original papers published in Czechoslovak as well as foreign journals, and by monographs published both in Czechoslovakia and abroad. Lately Prof. Havelka conceived the idea of publishing a modern course in physics for students beginning their university studies — a course which would become a foundation stone of university erudition in physics. His work bears analogy to that created, e. g., by the staff of Feynmann's cooperators, or that of Berkley University — the difference lies in the fact that Prof. Havelka does the work all by himself.

It is necessary to mention Prof. Havelka's merits in Czechoslovak as well as foreign scientific institutions and organizations. He works at the Czechoslovak Academy of Sciences as a member of the Advisory Staff on Physics and as the leading co-ordinator of the main task of the State Research Plan in the field of optics for 1971–1975, called „Special Problems of Optics and Acoustics and the Construction of Unique Apparatuses”. Within the framework of this main task there are seven special tasks organized by respective co-ordinators. One of these co-ordinators is Prof. Havelka again for the field of physical optics.

As for his activities abroad Prof. Havelka belongs to the founders of the International Commission for Optics of the International Union for Pure and Applied Physics, and is at the same time the Chairman of its Czech national committee at the Czechoslovakia. He is a member of the Editorial Staff of the journal „Optica Acta”, published by the Union in London, and a member of the committee for the publication of a twelve-language dictionary on optics. He

wrote about one hundred papers dealing with the publications in optics for the journal "Zentralblatt für Mathematik". He is the author of almost all the items on optics in the Czechoslovak Encyclopaedia which is being prepared for publication.

Prof. Havelka has always been respected as a scientific worker and a pedagogue by his colleagues as well as students for his modesty and noble mind. For many of his postgraduates he was a kind tutor, many of his pupils have been working in various scientific institutions and universities.

Last but not least we would like to mention that Prof. Havelka is celebrating his anniversary doing his busy work in full physical as well as mental strength. We would like to express here our hearty congratulations and our acknowledgement of Prof. Havelka's outstanding works. We do hope that Prof. Havelka will realize all of his great plans for the benefit of his students and for further development of physics in Czechoslovakia.

LIST OF PUBLICATIONS OF PROFESSOR B. HAVELKA

A) *Scientific monographies and handbooks*

- [1] Geometrical Optics T. I. NČSAV Praha (1955).
- [2] Geometrical Optics T. II. NČSAV Praha (1956).
- [3] Spectral Analysis. Design of Spectral Instruments. NČSAV Praha (1957). Fellow-author Keprt and Hansa.
- [4] Electromagnetic Field. SPN Praha (1958). Fellow-author Fuka.
- [5] Electricity and Magnetism. SPN Praha (1965). Fellow-author Fuka.
- [6] Optics. SPN Praha (1961). Fellow-author Fuka.
- [7] A Short Description of the Function and Design of Interference Refractometer. In Raclavský J.: Functional Diagnosis of the Lungs with Expectational Respect to the Tuberculosis. Fellow-author Keprt.

B) *Scientific papers*

- [8] Sur les courbes dans les espaces euclidiens à dimensions dont les courbures sont liées par des relations linéaires à coefficients constants. Comptes Rendus Acad. Sci. Paris. 200 (1935) 432.
- [9] The reflection of light on the glass with thin films. Rozhledy mat. přír. 23 (1943 - 44) 33.
- [10] Resolving power of optical instruments. Rozhledy mat. přír. 24 (1944 - 45) 40.
- [11] Anallactical telescope with the inner focusing. Fysika v technice 1 (1946) 257.
- [12] Does the depth of field of photographic objective depends on its optical forms? Čs. fotografie 2 (1947) 99.
- [13] The building of scientific instruments as a new tasks of concern Meopta. Meopta 1 (1947) 9.
- [14] The fundamental properties of light. Meopta 1 (1947) 12.
- [15] A depth of field of an objective in relation to the entrance pupil size and exit pupil size. Fysika v technice 2 (1947) 109.
- [16] The imaging from the view point of wave - optics. Moravská přírodov. společnost, Brno 18 (1947).
- [17] A method of phase contrast. Fysika v technice 2 (1947) 202.
- [18] The fluorescent microscopy. Fysika v technice 2 (1947) 298.
- [19] The fundamental properties of light. Meopta 2 (1948) 8.
- [20] The use of two - layer films for a decreasing of reflecting power of glass. Fysika v technice 3 (1948) 65.
- [21] The measuring of light. Meopta 2 (1948) 10.
- [22] Instruments and Measurements Conference in Stockholm. Chem. listy 42 (1948) 92.
- [23] The international exposition of measuring instruments. Chem. listy 42 (1948) 105.
- [24] The development of photographic objectives. Čs. fotografie 3 (1948) 145.
- [25] Antireflection layers. Meopta 3 (1949) 2.
- [26] About the lighting capacity of photographic objective. Čs. fotografie 4 (1949) 124.
- [27] Optical instruments in a science and technics. Přír. vědy ve škole (1950 - 51) 409 and 485

- [28] How a wave nature of light is demonstrated under imaging process. Přir. vědy ve škole 4 (1954) 193.
- [29] Fundamental photometric terms and units. Přir. vědy ve škole 4 (1954) 866.
- [30] The unification of calculation of field depth. Sborník VŠP Olomouc (1955) 13.
- [31] The nature of an image in telescope. Přir. vědy ve škole 5 (1955) 97.
- [32] The quality of image formed by an optical system with using of white light. Rozpravy ČSAV 66 (1956) 1.
- [33] Critical focal length and critical stop of photographic objective. Rozpravy ČSAV 66 (1956) 21.
- [34] Significance of thickness and refractive index for antireflecting films. Rozpravy ČSAV 66 (1956) 33.
- [35] A determination of image structure of optical system and the best plane of the imaging. Sborník VŠP Olomouc (1957) 119.
- [36] The education of optics in general secondary schools. Přir. vědy ve škole 7 (1957) 689. Fellow-author Fuka.
- [37] The use of quality coefficients and quality numbers for design of optical system. Jem. mechan. a optika 2 (1956) 42.
- [38] The influence of chromatic aberration on image structure. Sborník VŠP Olomouc (1958) 62.
- [39] International colloquia about optics in metrology. Jem. mech. a optika 2 (1958) 417.
- [40] A contribution to the production-tolerance of measuring prisma of refractometer and the conditions of its adjustment. Sborník VŠP Olomouc (1958) 62.
- [41] Wide angle cinematography. Přir. vědy ve škole 9 (1959) 292.
- [42] Contribution to the computation of Clairaut-Mossotti's Objective. Acta Universitatis Palackianae Olomouensis (1959) 29.
- [43] A telescope 350 years old. Přir. vědy ve škole 11 (1961) 4.
- [44] The significance of theoretical branches for the scientific and technical development. Jem. mechan. a optika 6 (1962) 193.
- [45] The properties of the telescope. Fys. ve škole 2 (1963) 129.
- [46] Physical and mathematical sciences as a basis of natural and technical sciences. Fys. ve škole 1 (1963) 143.
- [47] Fundamental concepts of the theory of relativity. Fys. ve škole 3 (1965) 289 and 347. Fellow-author Fuka.
- [48] Dynamics in the theory of relativity. Fys. ve škole 4 (1965) 97. Fellow-author Fuka.
- [49] Quantum nature of electromagnetic radiation. Fys. ve škole 5 (1966) 97. Fellow-author Fuka.
- [50] Principal concepts of statistical physics. Fys. ve škole 4 (1966) 337. Fellow-author Fuka.

C) *Internal publications of the concern Optikotechna and Meopta*

- [51] A survey of formulas for design of optical systems. Optikotechna Přerov (1939).
- [52] Design of optical systems, T. I, II, III. Optikotechna Přerov (1943).
- [53] Principles of optics, T. I, II. Optikotechna Přerov (1944).
- [54] A study of spherical aberration. Optikotechna Přerov (1944).
- [55] Resolving power of optical instruments. Optikotechna Přerov (1944).
- [56] The use of multilayer films for the decreasing of reflection of light on the glass. Meopta Přerov (1945).
- [57] Optical design of refractometers. Meopta Přerov (1947).
- [58] The types of refractometers. Meopta Přerov (1947).
- [59] The optical design of spectral instruments. Meopta Přerov (1947).

D) *Instructional texts and lectures*

- [60] Optics. Meopta Přerov (1950).
- [61] Optics for the vocational schools. Works school of labour by Meopta Přerov (1951).
- [62] Geometrical optics. Institute of extra-mural studies, Praha (1952).
- [63] Fundamentals of optics. Works school of labour by Meopta Přerov (1952).
- [64] The quality of optical image and interference filters. Institute of study and information for the vocational education, Praha (1953).
- [65] Electricity and magnesium. SPN Praha (1954). Fellow-authors J. Fuka, B. Hacar.
- [66] Laboratory exercises in physics. SPN Praha (1955). Fellow-authors J. Fuka, J. Kunzfeld, V. Vyšín.
- [67] Photon optics and structure of atoms. SPN Praha (1961 and 1964). Fellow-author J. Fuka.
- [68] The theory of relativity. SPN Praha (1964). Fellow-author J. Tillich.
- [69] Theory of electromagnetic field. SPN Praha (1965).
- [70] The imaging on the basis of ray-optics. SPN Praha (1966).

- [71] The imaging on the basis of wave-optics. SPN Praha (1966).
- [72] Physics of atomic nuclei. SPN Praha (1966). Fellow-author J. Fuka.
- [73] A methodology of optical systems calculations. UP Olomouc 1968.
- [74] Fundamental course of physics. To appear.

E) *Other papers*

- [75] Report about the book Petržílka: Physical optics. Čs. čas fys. (1954), 225, and Přírod. vědy ve škole 5 (1955).
- [76] Scientific works in the branch of optics in Czechoslovakia Collectiv Reports from the first symposium Interkamera, Praha (1963) 37.
- [77] Scientific symposium Interkamera. Věstník ČSAV 3 (1964) 289.
- [78] Doc. Dr. Bohumil Haecar 80 years old. Fys. ve škole 4 (1966) 334. Fellow-author Široký.
- [79] Reports on the papers in the theoretical optics. 91 reports in Zentralblatt für Mathematik (1959 - 1966).
- [80] Fundamental concepts of optics in prepared Czechoslovak Encyclopedia. In print.
- [81] Optics in Czechoslovakia. Applied Optics 7 (1968) 2111. Fellow-author A. Vaško.
- [82] Modern Concepts of Coherence. KPÚ Olomouc (1971).