A HALF-FORGOTTEN ALBUM
Photographs of 133 Pioneers of Early Plant Breeding/Genetics*

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"Mendelism is a subject which has to come to stay and to play an important part of human affairs. In Agriculture, Horticulture (...) its voice will be heard. It will not be as a voice in the desert, but as a world-vibratory one, uttering its pronouncements, admonitions, and definite conclusions, based on solid and unshakeable ground of accurate experiment, wherever culture and life come into contact (...)."¹

The Mendel Journal, 1909

ABSTRACT – The worldwide unique collection of 133 personal photographs of the key figures in early Mendelian era, which was revealed in 2014, reminds us the important position of plant breeding (and breeders) in the early development of research of heredity and the nascent science of genetics in the first three decades of the 20th century’s. It was this exceptional community, in which the intellectual concepts that influenced this development were produced, the relevant personal and institutional links established, and the new and rapid developing knowledge utilized in a very practical way. The photographs, collected in 1931 by Erich von Tschermak-Seysenegg, are published after more than eighty years for the first time on occasion of the 150th anniversary G. J. Mendel’s presentation of his results in 1865.

KEYWORDS – Mendelism & Genetics – plant breeding – personalities – networks – Habsburg monarchy

INTRODUCTION

Habsburg monarchy occupies a special place in the development of the modern science of heredity. This is largely due to the work of Gregor Johann MENDEL (1822–1884) whose experiments with plants (and partially also animals) material in the mid-19th century undertaken in the Moravian capital Brno/Brünn inspired the lines of thought which later became known as ‘Mendelism’.² Gradual and circuitous adoption and/or reflexion of Mendel’s principles, their interpretation and confrontation with other contemporary theories and with scientific evidence from other areas of biological research all played an important role in establishing a new science which in formulation of the

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leading British botanist William Bateson (1861–1926) came after 1906 to be known as ‘Genetics’.  

The development of early genetics, also called classical, was by no means isolated. It occurred in several regions and centres throughout the contemporary scientific community of biology, practical plant and animal breeding, and partially also medicine. Still, one can isolate some features that were specific to the Bohemian, Moravian, and Austrian situation during the crucial ‘period of conceptual and terminological clarifications’ before the outbreak of WWI in 1914 and even in the inter-war period of the 1920s. 

The first such feature was of a general nature, a consequence of historical realities of this region that had an impact on the development of modern science in general and genetics in particular. It had to do with multilingualism, with cultural diversity within the monarchy, and with the dominance of German speaking science. Due to these factors, Bohemia, Moravia, and Austria represent in the origins of modern genetics a territory that created a tradition transcending purely geographically and culturally given borders. These links were realised through personal relations and institutional ties as well as through conceptual affinities. Just to demonstrate how confusing it may be to try and disentangle these links: After 1900, some contemporaries spoke of an ‘Austrian tradition’ in the research of heredity in connections that were clearly intended to include developments in Moravia. In this context, G. J. Mendel was presented as a man of ‘Austrian’ science in 1910. Since the 1920s, he was portrayed mainly as a (Sudeten-) German hero of science, and in the 1940s, he was transformed by the official propaganda into a pan-Germanic hero of natural science alongside Johann Wolfgang von Goethe and Ernst Haeckel. On the other hand, after 1918 one witnessed also somewhat delayed efforts to integrate genetics into a program of mainly linguistically defined ‘national’ Czech (Czechoslovak) natural sciences. In 1922, one can even observe a rather unique situation when the 100th anniversary of Mendel’s birthday took place officially under the auspices of the new Czechoslovak state and its first President. Mendel’s local connection to Moravia and to the city of Brno played a very significant role especially in Mendel’s biographies and continues de facto to this day. Other examples demonstrate the closeness of ties some Mendel’s contemporaries had to triangle of cultural and intellectual centres of the region such as Prague/Prag, Brno/Brünn, and Vienna/Wien. For example, Hans Molisch (1856–1937), Brno-born botanist from a well-known family of plant-lovers whose garden had been used by Mendel, was in 1894–1909 professor of botany at the German Charles-Ferdinand University in Prague. And last but not least, one of the grandsons of Eduard Fenzl (1808–1879), botanist and Mendel’s examiner in Vienna, Armin von Tschermak-Seysenegg (1870–1952), who took part in the ‘rediscovery’ of Mendel’s work in 1900, was appointed professor of physiology at the German Medical Faculty in Prague in 1913. 

The second specific feature of science of heredity/genetics in Bohemia and Moravia is related to certain developments within science in general, and to some parts of contemporary life sciences in particular. That is, the variety of intellectual developments within specific research directions and schools around the turn of the century to a large extent tended to determine the potential (priorities, research directions, and limitations) and orientation of research in heredity and genetics in the first three decades of the 20th century. In this part of scientific landscape, one can find both significant similarities and differences. Another aspect that should be noted is the internationalization of co-operation in this particular area, which ran largely counter the then general trend of nationalization of both scientific communities and emancipation of Czech science from the German one that took place since 1880s. The environment of the incipient science of genetics, its spread, and reception even in Mendel’s homeland at the dawn of the 20th century was thus shaped by both internal and external
factors. However, it yet remains to be seen whether any specific and particular local ‘styles of scientific thought’ also developed along the nationally defined lines.\textsuperscript{14}

The impact and reception of Mendelian explanation of heredity in Bohemia, Moravia, and Austria in the first three decades of the 20\textsuperscript{th} century has so far been studied rather marginally, and mainly in the context of the work of select authors or scientific disciplines including plant breeding.\textsuperscript{15} In general overviews of the history of genetics, this issue is usually not covered at all.\textsuperscript{16} Generally certain grade of periodicity in dealing with the hereditary/genetic issues had been stated.\textsuperscript{17} The situation is further complicated by the fact that the development of the linguistically defined segments of modern biology in Habsburg monarchy is treated very unequally.

THE UTILIZED TRADITION: ERICH VON TSCHERMAK-SEYSENNEGG
AND RATIONALISATION OF PLANT BREEDING

After the instructed ‘re-discovery’ of Mendel’s work in 1900 Erich von Tschermak-Seysenegg – with a continuing shadow collaboration of his older brother Armin (1870–1952) – tried to write a new chapter in the ‘further development’ (\textit{Weiterentwicklung}) of ‘Mendelism’.\textsuperscript{18} Crucial to this version of Mendelism was their interpretation of the nature and role of the ‘factors’ and a ‘theory of factors’ (\textit{Faktorenlehre/Elementenlehre}) that was modified by William Bateson and others scientists. For both of them, the starting point of Mendelism was originally the ‘distinction of the values of traits’ (\textit{Unterscheidung der Merkmalwertigkeit}) and/or ‘accordance of certain traits’ (\textit{Übereinstimmung gewisser Merkmale}).\textsuperscript{19}

Until about the start of WWI, however, they tended to express their views within the framework of the theory of cryptomerism (Erich v. T.-S.), that is, the assumption that characters can be masked due to recessiveness or due to a complementary factor basis of inheritance, and within the theory of genasthenia (Armin v. T. S.), that is, assuming that in addition to quantitative properties, genes have quantitative characteristics or functional valency, which may be reduced in a heterozygote or in a partly foreign plasma.\textsuperscript{20} In later correspondence, they focused on issues of heredity and genetics such as the genotype-phenotype distinction of Wilhelm Johannsen (1857–1927) or the chromosome theory of heredity of Thomas H. Morgan (1866–1945) and his collaborators in the 1920s and 1930s.

Parallel to this theoretical contribution and further promotion of Mendelian legacy\textsuperscript{21} closely related to his status as one of the three ‘re-discoverers’, Erich v. T.-S., who was in fact inspired by older traditions of 19\textsuperscript{th} century practical breeders and contemporaries such as Wilhelm Rimpau (1842–1903) and Henry Léveque de Vilmorin (1843–1899) etc., used the early Mendelian knowledge as a scientific method to improve the agronomic efficiency of cultivated plants in practical plant breeding.\textsuperscript{22} These fundamental principles were applied with clear intention to achieve stable and uniform combinations of different characters of parental genotypes by crossings, individual selection and separate testing of the progenies in all agricultural crops. He advocated the system of so called combination breeding instead of the only individual ear selection of phenotypically equal plant types within population, which was very common in creating ‘improved’ varieties at that time. Due to his skilled crossing techniques and improved selection management he started first with cereals. With various crossings of rye and wheat varieties of different origins he tried to solve one of the most important problems cereal breeders were confronted with in the dry areas of Lower Austria, Moravia and Western Hungary, namely to combine earliness with high yielding performance.\textsuperscript{23} The later
performance of many of his varieties in barley and wheat showed perfectly the possibility to combine successfully even these negatively correlated characters!

Erich v. T.-S. combined successfully his experimental merits with the vision into apply Mendel’s ideas in the practical breeding work. He not only succeeded to convince agricultural institutions to follow this track, but also consequently established one of the most remarkable networks in plant breeding in contemporary Europe. The countless numbers of new varieties in nearly all agricultural crops and ornamentals were milestones and missions for the development plant breeding has made within the 20th century.

To prevent his leaving for a new professorship from Vienna to Děčín-Libverda/Tetschen-Liebwerd, Bohemia, Brno/Brünn, Moravia (Technical University), and Breslau, Silesia, respectively, the Viennese authorities of the Hochschule für Bodenkultur promoted him to the position of an assistant professor in 1903 and founded a new separate Institute (chair) of Plant Breeding (Lehrkanzel für Pflanzenzüchtung) three years later (1906). It was the first established chair for plant breeding in Europe, poorly equipped but still a permanent position for his great planes and further activities.

At the experimental farm of the university in Gross-Enzersdorf, about 25 km east of Vienna, he founded the first plant breeding station, partly with the help of US donation. After a study tour to the U.S., where ETS became acquainted with the steep rise of genetics within agricultural research and after a publication of comparisons between the US and Europe, Johann II, Prince of Liechtenstein (1840–1929) showed his interest in this prospective field of agricultural developments and founded 1913 a new institute for plant breeding, the so called Mendeleum in Lednice/Eisgrub, Southern Moravia. These new prospects stimulated him to move his breeding material for peas, beans and flowers (mainly primroses), but also some of his cereal to Lednice, where for the first time the staff and the equipment was adequate to promote his breeding activities in a wide range of agricultural crops including vegetables. Here he started the selection of early pea types (Victoria) and nearly all his work with ornamentals. His early co-operation (since 1904) with the doyen of the Austrian and Moravian plant breeders Emanuel von Proskowetz (1849–1944) extended his activities particularly in the field of spring barley breeding. Von Proskowetz tried since 1875 to improve the old barley land-races of his district Haná/Hanna in Middle Moravia by ear selection and progeny testing and could find particularly early and high yielding lines of malting barley. The so called Kwassitzer Original Hanna Pedigree become the mother of a wide range of malting barleys in Europe because of its high grain, quality, earliness, yield stability and high adaptability. In Germany many years after the release of this variety, 14 sister varieties demonstrated this early selection triumph which was similarly successful in Sweden. In the wheat breeding programme at Kvasice, Erich v. T.-S. selected from a cross between a Swedish wheat (Svalöfs Grenadier) × Banatian wheat (Banater Weizen) the variety “Non plus ultra”, which obtained very great importance in the Moravian wheat production. Further his awnless club wheats “Bon fermier” × “Blé gros bleu” = Schilfweizen, “Hanna” (a local wheat population) × “Blé gros bleu” and “Banater” × “Extra Squarehead” = Excelsior Weizen, gained some recognition in those days.

The progress of these activities in Moravia and the urgent need for better and more stable varieties in cereals and other crops motivated him to Erich v. Tschermak-Seysenegg to establish additional experimental sites and plant breeding stations within great agricultural estates most in the important agricultural areas of the Monarchy which were Bohemia, Western Hungary and last not least Lower Austria. Within a few years from 1903 onwards he established (after the foundation of Gross-Enzersdorf, Lednice and Kvasice) further 18 additional experimental field and plant breeding stations first in Moravia, Bohemia, Western Hungary, and Lower Austria.
To accomplish his Erich v. Tschermak-Seysenegg’s merits for the successfull creation of new varieties in agricultural crops, his various experiments and investigations about hybrids between genera and species must be honoured also. He was probably the first scientist who crossed sucessfully *Aegilops ovata* (2n = 28) × *Triticum dicoccoides* (2n = 28) which he called ‘*Aegilotricum*’ (2n = 56). This was the first genera-bastard artificially produced and cytogenetically approved. This was an opening for the experimental research of relationship between genera, but also for the production of synthetic types of cultivated plants by polyploidisation of sterile F1-bastards.

The results of this work to produce new varieties by his system were impressive: 2 varieties of winter rye, 13 varieties of winter wheat, 1 spring wheat variety, 2 winter and 6 spring barley varieties, 3 oat varieties and numerous varieties of peas, faba beans, and oil seed pumpkins. The range of ornamental plant varieties (about 85) is impressive also.

There is no doubt that in the period between 1900 and 1941 Erich v. T.-S., despite of his continuously promoted status as one of the three ‘re-discoverers’, was one of most successfull and world-wide recognized practical plant breeders in Europe. Today, the fundamental idea to combine purposely genes from different genotypes and his trust in the theory of inheritance must be seen an epochal event. With his excellent crossing techniques and improved selection techniques he established the system of so-called combination breeding with different characters of parental genotypes by crossing, individual selection and separate testing of the progenies for a multiple range of agricultural crops.

**HISTORICAL NOTES ABOUT THE SCIENTIFIC BEQUEST/COLLECTIONS OF E. VON TSCHERMAK-SEYSENEG**

After the death of Erich v. T.-S. in Vienna on October 11, 1962, his scientific and literary bequest connected with the University were stored until January, 18, 1965 in his former working room, situated in the Institute of Plant Production and Plant Breeding, nowadays Gregor-Mendel-Street 33, Vienna.

Following this event, the heir of Erich v. T.-S., who himself was childless, Dipl. Ing. Wolfgang Tschermak-Seysenegg offered a substantial part of the bequest to the Austrian Academy of Science in Vienna. After this transfer (1965), the member of the Mathematical and Natural Science Section of the Academy, Professor Dr. Fritz Knoll (1883–1981) was nominated to administrate and preserve these documents. All in all 19 large paper containers included his personal correspondence, manuscripts, lecture drafts, personal and foreign publications (offprints), book recessions and pictures of several conferences, journeys and visitors etc. The first elaboration of the main part of the collection kept by the Academy in Vienna was, however, done far late in 1983 by members of the library of the University Graz, Styria. In the meantime the whole collection was taken over by the Archives of the Academy of Sciences. Under the supervision of its head, Dr. Franz Sinell, this laborious task was finalized by the professional member of the archives, Marianne Menger, between March and October 2008. Since that the collection is in a serviceable condition.

A copy of each of all his publications and institute items, devoted to the Institute were kept in the rooms of the Institute. After the establishment of the newly built University Research Center Tulln (hereinafter UFT) in Lower Austria, these items were transferred to Tulln in April 2011. Among them was also the so-called Photo Album from 1931, which was kept in the library of the newly established Department of Plant Production at the UFT.

At the beginning of January 2008, the 3rd successor of the 1990 re-established chair of Plant Breeding, Professor Dr. Peter Ruckenbauer, started a new attempt and took the challenge to open this valuable treasure for the public.
On April 6, 2014, during the common visit of P. Ruckenbauer and Dr. Michal V. Simunek, Centre for the History of Sciences and Humanities of the Academy of Sciences in Prague, Czech Republic, visited the library of the Department of Plant Production in Tulln. This visit resulted in a find of a voluminous and unique Photo Album containing personal photographs of worldwide active Geneticists and Plant Breeders from the second half of the 19th and the first half of the 20th century. It was dedicated to Erich v. T.-S. in 1931 on the ocassion of his 60th birthday.

With the kind permission of the present head of the Department of Plant Production at the UFT, Prof. Dr. Hermann Bürstmayr, the content of this rare scientific detection can be – on the occasion of 150th anniversary of the presentation of the key scientific paper of Gregor J. Mendel in 1865 – made accessible for broader public in *Folia Mendeliana*.

**EDITORIAL NOTES**

Despite of the original version of the Photo Album the personal photographs are organized alphabetically.

**NOTES AND REFERENCES**

7 In this sense, it was used by the brothers Armin and Erich von T.-S. who viewed themselves as the main representatives of the ‘Austrian (Mendelian) tradition’. See SIMUNEK, M. V., HOIFELD, U., THÜMMLER, F.,


In this particular area, in the first three decades of the 20th century were especially noteworthy the efforts of the physiologist Edward Babák (1873–1926), medical biologist Vladislav Růžička (1870–1934), and botanist and plant physiologist Bohumil Němec (1873–1966).


Ibid.


26 RUCKENBAUER, op. cit., p. 33.

27 Ibid., pp. 33–34.


30 RUCKENBAUER, op. cit., pp. 34–35.

31 Ibid.

32 One of the main reasons might be that Erich v. Tschermak-Seysenegg was from 1930 onwards so called real member of the Austrian Academy of Sciences in Vienna.

33 In detail see: <http://www.oead.ac.at/biblio/Archiv/pdf/Tschermak-NL.pdf> [March 30, 2015]
Fig. 1. Adametz, Leopold (1861–1941) – Professor of Livestock Breeding, Hochschule für Bodenkultur, Vienna, and Faculty of Agriculture, University Warsaw; Hofrat.

Fig. 2. Akermann, Ernst Ake (1887–1955) – Sveriges Utsädesförening (Swedish Seed Association), Svalöf.

Fig. 3. Appel, Otto Friedrich Carl Louise (1867–1952) – Head of the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem; Geheimer Regierungsrat.
Fig. 4. Bateson, William (1861–1926) – Professor of Biology at the University of Cambridge, UK.

Fig. 5. Baur, Erwin (1875–1933) – Professor of Botany at the Landwirtschaftliche Hochschule, Berlin-Dahlem, and Head of the Kaiser-Wilhelm-Institut (hereinafter KWI) für Züchtungsforschung, Müncheberg.
Fig. 6. Bittera, Miklós Vitéz (1887–1947) – Professor of Plant Production at the Hungarian Royal Academy of Farming, Magyarvar.
Fig. 7. Blakeslee, Albert Francis (1874–1954) – Carnegie Institute of Washington, D. C. and Department of Genetics, Station for Experimental Evolution, Cold Spring Harbor, N. Y.

Fig. 8. Boeuf, Emilien Alexandre (1873–?) – Professor at l’École d’Agriculture de Tunis, Tunisia.

Fig. 9. Bredemann, Gustav (1880–1960) – Professor of Applied Botany at the Hamburgische Universität, Hamburg.
Fig. 10. Bremer, Gustav (?) – Proefstation voor de Java-Suikerindustrie te Pasoeroean, Dutch East Indies.
Fig. 11. Brieger, Friedrich (1900–1985) – *KWI für Biologie*, Berlin-Dahlem; fled later from Nazi-run Germany to Brazil where he spends most time of his scientific career.

Fig. 12. Cieslar, Adolf (1858–1934) – Professor for Forest Production at the *Hochschule für Bodenkultur*, Wien; *Hofrat*.

Fig. 13. Correns, Carl (1864–1933) – Professor for Botany at the *Westfälische Wilhelms-Universität*, Münster, and Head of the *KWI für Biologie*, Berlin-Dahlem.
Fig. 14. Davenport, Charles Benedict (1866–1944) – Director of the Carnegie Institute, Washington, D. C., and Cold Spring Harbor, N. Y.

Fig. 15. De Vries, Hugo (1848–1935) – Professor of Botany at the University Amsterdam.

Fig. 16. Drahorad, Friedrich (1891–1972) – Head of the Plant Breeding Department, Bundesanstalt für Pflanzenbau und Samenprüfung, Vienna.
Fig. 17. Dreger von, Adolf (1872–1936) – Owner of the Plant Breeding Station in Chlumec nad Cidlinou, Bohemia.

Fig. 18. Elofson (?–?) – Altona Uppsala.

Fig. 19. Engledow, Frank Leonard (1890–1985) – Professor Agriculture and Head of the Department of Agriculture of the University of Cambridge, UK.
Fig. 20. Erler, Emil (?–?) – Director of the Landeskulturat Tirol; later first Kammeramtsdirektor der Landwirtschaftskammer Tirol, Innsbruck.

Fig. 21. Ernst, Alfred (1875–1968) – Professor of General Botany at the University Zurich.

Fig. 22. Federley, Harry (1879–1951) – Professor of Genetics and Head of the Institute for Hereditary Research at the University of Helsinki.
Fig. 23. Feichtinger, Ernst K. (1897–1968) – Lecturer for Encyclopedia of Agriculture, Technische Hochschule, Vienna, and since 1929 assistant in Groß-Enzersdorf.

Fig. 24. Flyaksberger, Konstantin Andreevich (1880–1942) – Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.

Fig. 25. Freudel, Eligius (1875–1951) – Professor of Plant Production at the Deutsche Landwirtschaftliche Hochschule, Děčín-Libverda, Bohemia.
Fig. 26. Frimmel von Traisenau, Franz (1888–1957) – Professor of Plant Breeding at the Deutsche Technische Hochschule, Brno, Moravia.

Fig. 27. Fruwirth, Carl (1862–1930) – Professor of Plant Production at the Technische Hochschule, Vienna; earlier at the Landwirtschaftliche Akademie, Hohenheim.

Fig. 28. Gaines, Edward Franklin (1886–1944) – Professor of Genetics in Agronomy, Washington State University.
Fig. 29. Gassner, Gustav (1881–1955) – Professor of Botany and Director of the Botanical Garden of the University of Technology, Braunschweig.

Fig. 30. Gates, Ruggles Reginald (1882–1962) – Professor of Botany, Kings College, University of London.

Fig. 31. Godijn, Wouter Adriaan (1884–1960) – Dutch geneticist; co-editor of Bibliographia et Resumptio Genetica, Leyden.
Fig. 32. Goldschmidt, Richard (1878–1958) – Professor of Biology at the Ludwig-Maximilians-Universität, Munich, and Head of the KWI für Biologie, Berlin-Dahlem.

Fig. 33. Goodspeed, Thomas Harper (1887–1966) – Director of the University of California Botanical Garden, Berkeley.

Fig. 34. Gorin, Alexander Porphirievich (1894–1928) – Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.
Fig. 35. Greisenegger, Ignaz Karl (1874–1932) –  
*Dozent* of the Agricultural Plant Production at  
Hochschule für Bodenkultur, Vienna; Head of the  
*Bundesanstalt für Pflanzenbau und Samenkontrolle*, Vienna.

Fig. 36. Gruber, Friedrich (?–?) – *KWI für Züchtungsfor-
schung*, Division of Berry Fruits, Müncheberg.

Fig. 37. Haase-Bessell, Gertraud (1876–?) – Private  
scholar, Dresden.
Fig. 38. Haberlandt, Gottlieb (1854–1945) – Professor of Plant Physiology at the Friedrich-Wilhelms-Universität, Berlin; Geheimer Regierungsrat.

Fig. 39. Hainisch, Ottokar (1896–1966) – Lecturer of Plant Breeding at the Deutsche Technische Hochschule, Brno, and Plant Breeder in Kvasice, Moravia.

Fig. 40. Hammerlund, Carl (1884–1965) – Sveriges Utsädesförening (Swedish Seed Association), Svalöf.
Fig. 41. Himmelbaur, Wolfgang (1886–1937) – Professor of Systematical Botany at the University Vienna.

Fig. 42. Hollingshead Hill, Edna Lillian (1900–1984) – Department of Agricultural Economics and Farm Management, Cornell University, Ithaca.

Fig. 43. Chmelař, František (1891–1971) – Professor of Plant Production at the University of Agriculture, Brno, Moravia.
Fig. 44. Isatchenko, Boris Lavrentievich (1871–1948) – Lecturer of Microbiology at St. Petersburg University; later Director of the Botanical Garden in St. Petersburg and researcher at the Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.

Fig. 45. Jeswiet, Jacob (1879–1960) – Professor of Plant Geography and Plant Systematics at the Landbouwhogeschool, Wageningen.

Fig. 46. Johannsen, Wilhelm (1857–1927) – Professor of Botany and Plant Physiology at the Royal Veterinary and Agricultural University, Copenhagen.
Fig. 47. Jørgensen, Carl Adolf (1899–1968) – Secretary of the Dansk Botanist Förening, Lyngby.

Fig. 48. Kappert, Hans (1890–1976) – Professor of Heredity at the Landwirtschaftliche Hochschule, Berlin-Dahlem.

Fig. 49. Karpe(t)chenko, Georgy Dmitrievich (1899–1941) – Professor of Botany and Head of the Department of Plant Genetics at the University Leningrad.
Fig. 50. Kaserer, Hermann (1877–1955) – Professor of Agricultural Production and Viticulture at the Hochschule für Bodenkultur, Vienna.

Fig. 51. Kiessling, Ludwig (1975–1942) – Professor of Crop Sciences at the Ludwig-Maximilians Universität, Munich; Geheimer Regierungsrat.

Fig. 52. Kihara, Hitoshi (1893–1986) – Professor of Experimental Genetics and Applied Botany at the Botanical Institute of the Kyoto Imperial University.
Fig. 53. Klein, Gustav (1892–1954) – Professor of Plant Physiology, Vienna.

Fig. 54. Kočnar, Karel (1889–1960) – Dozent of Plant Breeding at the University of Agriculture, Brno, Moravia.

Fig. 55. Köck, Gustav (1879–1939) – Professor of Phytopathology at the Hochschule für Bodenkultur, Vienna; Hofrat.
Fig. 56. Koernicke, Max (1874–1955) – Professor of Botany at the Friedrich-Wilhelms-Universität, Bonn and Landwirtschaftliche Hochschule, Bonn-Poppelsdorf.

Fig. 57. Konšel, Josef (1875–1958) – Professor of Plant Breeding at the University of Agriculture, Brno, Moravia.

Fig. 58. Kuckuck, Hermann (1903–1992) – KWI für Züchtungsforschung, Müncheberg; later Professor for Genetics at the Gottfried Wilhelm Leibniz Universität, Hannover.
Fig. 59. Lathouwers, Victor (1880–1952) – Professor of Plant Breeding, Institut Agronomique, Gembloux.

Fig. 60. Lehmann, Ernst (1880–1957) – Professor of Botany at the Eberhard Karls Universität, Tübingen.

Fig. 61. Lokscha, Johann (Hans) Franz (1895–1975) – Lecturer of Agriculture at the Deutsche Technische Hochschule, Brno, Moravia.
Fig. 62. Lotsy, Johann Paulus (1867–1931) – Secretary of *L'Association Internationale des Botanistes*, Velp – Arnhem.
Fig. 63. Magoczy-Dietz, Sándor (1855–1945) – Professor of Botany and Director of the Botanical Garden of the Eötvös Loránd University, Budapest.

Fig. 64. Malinowski, Edmund (1885–1979) – Professor of Genetics and Betterment of Plants at the Research Institute of Horticulture, Skierniewce.

Fig. 65. Miczyński, Kazimierz Adam (1899–1956) – Akademia Rolnicza, Dublany.
Fig. 66. Michurin, Ivan Vladimirovich (1855–1935) – Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.

Fig. 67. Mjøen, Alfred Jon (1860–1939) – Winderen Laboratorium, Oslo, and Chairman of the International Federation of Eugenics Organizations.

Fig. 68. Moldenhawer, Konstanty Włodzimierz (1889–1962) – Lecturer of Plant Botany and Genetics, Hodowli Nasion Buraków Cukrowych, Motycz.
Fig. 69. Molisch, Hans (1856–1937) – Professor of Plant Physiology at the University Vienna; Hofrat.

Fig. 70. Muller, Hermann Joseph (1890–1967) – Professor of Zoology at the University of Texas, Austin.

Fig. 71. Mayer-Gmelin, Hugo Karl Hans Adolf (1873–?) – Professor für Plant Breeding at the Landbouwhogeschool, Wageningen.
Fig. 72. Navashin, Mikhail Sergeevitch (1896–1973) – Director of the Botanical Garden of the Moscow University and researcher at the Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.

Fig. 73. Heribert-Nilsson, Nils (1883–1955) – Professor of Botany at the Lund University.
Fig. 74. Oehler, Ernst (1899–?) – KWI für Züchtungsforschung, Müncheberg.

Fig. 75. Olbrich, Wilhelm (1880–1945) – Professor of Descriptive Geometry and Mathematics at the Hochschule für Bodenkultur, Vienna.

Fig. 76. Opitz, Kurt (1877–1958) – Professor for Agronomy at the Landwirtschaftliche Hochschule, Berlin.
Fig. 77. Ossent, Hans Peter (?–?) – rye breeder, KWT für Züchtungsforschung, Müncheberg. Ossian Dahlgren, Karl Vilhelm (1888–1976) – Private lecturer of Botany at the University Uppsala.

Fig. 78. Ostermeyer, Adolf (1867–1935) – Professor of Agricultural Marketing, Business Administration and Accounting at the Hochschule für Bodenkultur, Wien; Hofrat.

Fig. 79. Pearl, Raymond (1879–1940) – Professor of Biometrics and Statistics at the John Hopkins University, Baltimore, Maryland.
Fig. 80. Percival, John (1863–1949) – Professor of Agricultural Botany at the University of Berkshire, Reading.

Fig. 81. Plate, Ludwig (1862–1937) – Professor of Zoology and Director of the Phyletisches Museum at the Friedrich-Schiller-University Jena.

Fig. 82. Porsch, Otto (1875–1959) – Professor of Botany at the Hochschule für Bodenkultur, Wien.
Fig. 83. Portheim von, Leopold (1869–1947) – Biological Research Institute of the Academy of Sciences Vienna.

Fig. 84. Proskowetz von Proskow und Markstorff, Emanuel (1849–1944) – Farmer and ‘Old Master of the Austrian Plant Breeders’.

Fig. 85. Rasmusson, Johan (1894–1964) – *Sveriges Utsädesförening* (Swedish Seed Association), Svalöf; director (1935–1959) of *Betförädlings-institutionen* (Sugarbeet Breeding Institute) Hilleshög, Landskrona.
Fig. 86. Raum, Hans (Johannes) (1883–1976) – Professor of Plant Breeding and Grassland Sciences at the *Landwirtschaftliche Hochschule*, Weihenstephan.

Fig. 87. Renner, Otto (1883–1960) – Professor of Botany and Director of the Botanical Garden at the Friedrich-Schiller-University Jena.

Fig. 88. Reuter, Enzio (1867–1951) – Professor of Zoology at the University Helsinki.
Fig. 89. Richter, Oswald (1878–1955) – Professor of Botany at the Deutsche Technische Hochschule, Brno, Moravia.

Fig. 90. Roemer, Theodor (1883–1951) – Professor of Agronomy, Tropical Agriculture and Plant Breeding at the Friedrichs-Universität Halle.

Fig. 91. Rosenberg, Gustaf Otto (1872–1948) – Professor of Botany at the University Stockholm.
Fig. 92. Rossi, Eduard (?–?) – Pflanzenbau-Oberinspektor of the Landwirtschaftlich-chemische Bundesversuchsanstalt, Linz. Rossi, Luise (?–?) – Gardener, Eisgrub.

Fig. 93. Rudloff, Carl Friedrich (1899–1962) – KWI für Züchtungsforschung, Müncheberg.

Fig. 94. Rümker von, Kurt (1859–1940) – Professor of Plant Production at the Schlesische Friedrich-Wilhelms-Universität, Breslau, and Friedrich-Wilhelms-Universität, Berlin.
Fig. 95. Rüschdi, Omer (?–?) – *KWI für Züchtungsforschung*, Müncheberg.

Fig. 96. Růžička, Vladislav (1870–1934) – Professor of General Biology at the Czech Charles-Ferdinand University, Prague, Bohemia.

Fig. 97. Rybin, Vladimir Alexeevich (1893–1979) – Department of Applied Botany at the State (Central) Institute of Experimental Agronomy, Leningrad.
Fig. 100. Sedlmayr, Ernst Conrad (1868–1939) – Professor of Agricultural Business Operations at the Hochschule für Bodenkultur, Vienna; Hofrat.

Fig. 98. Sapeghin, Andrei Afanasyevich (1883–1946) – Institute of Applied Botany, Leningrad.

Fig. 99. Saulescu, Nicolae A. (1898–1977) – Stațiunea de Ameliorare a Plantelor, Cluj.
Fig. 101. Sengbusch von, Reinhold Oskar Kurt (1898–1985) – *KWI für Züchtungsforschung*, Müncheberg.

Fig. 102. Sessous, George (1876–1962) – Professor of Agronomy at the University Giessen.

Fig. 103. Shull, George Harrison (1874–1954) – Professor of Botany, Princeton University.
Fig. 104. Schick, Rudolf (1905–1969) - KWI für Züchtungsforschung, Müncheberg.

Fig. 105. Schiemann, Elisabeth (1881–1972) - Professor of Cultural Plants at the Landwirtschaftliche Hochschule, Berlin-Dahlem.

Fig. 106. Schindler, Franz Friedrich (1854–1937) - Private lecturer of Agricultural Economics at the Hochschule für Bodenkultur, Vienna; Hofrat.
Fig. 107. Sirks, Marius Jacob (1889–1966) – *Nederlandsche botanische Vereeniging* (Dutch Botanical Society), Wageningen.

Fig. 108. Skalińska z Grosglików, Marja (Maria) (1890–1977) – Professor of General Botany at the Free Polish University, Warsaw.

Fig. 109. Sperlich, Adolf (1879–1963) – Professor of Botany at the University Innsbruck.
Fig. 110. Stakman, Elvin Charles (1885–1979) – Professor of Plant Pathology, University of Minnesota, Minneapolis.
Fig. 111. Stammer, Adolf (?-?).

Fig. 112. Stebut, Aleksandar Ivanović (1877–1952) - former Head of the Institute for Plants Improvement, Saratov; professor at Saratov, Moscow and Simferopol Universities; 1919 emigration to Serbia; director of the Institute for Plants Improvement in Zemun; director of the Pedology Institute.

Fig. 113. Stoklasa, Julius (1857–1936) - Professor of Agricultural Chemistry at the Czech Technical University, Prague, Bohemia.
Fig. 114. Stubbe, Hans (1902–1989) – KWI für Züchtungsforschung, Müncheberg.

Fig. 115. Szabó, Zoltán (?) – Professor of Agricultural Botany and Plant Breeding at the Eötvös Loránt University, Budapest.

Fig. 116. Takezaki, Yoshinori (1882–1975) – Professor of Plant Breeding, Imperial University Kyoto.
Fig. 117. Tammes, Jantina (1871–1947) – Professor of Heredity at the Rijksuniversiteit Groningen.
Fig. 118. Tavčar, Alois (1895–1979) - Slovenian agronomist and geneticist; Professor of Plant Breeding and Genetics at the University of Zagreb.

Fig. 119. Tischler, Georg Friedrich Leopold (1878–1955) – Professor of Botany at the Christian-Albrechts-Universität, Kiel.

Fig. 120. Tjebbes, Klaas (1886–1935) - Head of the Institute of Sugar Beet Breeding (Betförädlingsinstitutionen) Hilleshög, Landskrona (1912–1916 & 1925–1935).
Fig. 121. Ubisch von, Gertrud (Gerta) (1882–1965) – *Dozent* of Botany and Heredity at the *Ruprechts-Karl-Universität*, Heidelberg.

Fig. 122. Ufer, Max (1900–1983) – *KWI für Pflanzenzüchtung*, Müncheberg; fled later from Nazi-run Germany to Brazil.
Fig. 123. Vavilov, Nikolai Ivanovich (1887–1943) – Professor of Botany and Director of the Lenin All-Union Academy of Agricultural Sciences. Leningrad.
Fig. 124. Vilmorin, Henry de (1843–1899) – Botanist and Agriculturist, Paris-Massy.

Fig. 125. Wacker, Johann (1868–1934) – Professor of Agronomy and Plant Breeding at the Landwirtschaftliche Hochschule, Hohenheim.

Fig. 127. Went, Friedrich August Ferdinand Christian (1863–1935) – Professor of Botany at Utrecht University.
Fig. 126. Wellensieck, Susan Jacobus (1899–1990) – Landbouwhogeschool, Wageningen.
Fig. 128. Wettstein, Ritter von Westersheim, Friedrich (1895–1945) – Professor of Botany and Director of the Botanical Garden at the Ludwig-Maximilians-University, Munich.

Fig. 129. Wettstein, Ritter von Westersheim, Wolfgang (1898–1984) – assistant of E. Baur, KWI für Züchtungsforschung, Müncheberg; later at the Forstliche Bundes-Versuchsanstalt Mariabrunn, Austria.

Fig. 130. Winge, Öjving (1886–1964) – Carlsberg Laboratorium, Kopenhagen.
Fig. 131. Yamaguchi, Yasuke (1888–1966) – Professor of Plant Physiology, Tohoku Imperial University; President of the Japanese Society of Genetics.

Fig. 132. Zade, Adolf (1880–1949) – Professor of Agronomy and Plant Breeding at the University Leipzig.

Fig. 133. Zederbauer, Emmerich (1877–1962) – Professor of Pomi- and Horticulture at the Hochschule für Bodenkultur, Wien.