BIOGRAPHY OF
LASZLO (LADISLAUS) BERCZELLER (1890-1955)
AND HISTORY OF HIS WORK WITH
EDELSOJA WHOLE SOY FLOUR:
EXTENSIVELY ANNOTATED
BIBLIOGRAPHY AND SOURCEBOOK

Compiled
by
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SOYINFO CENTER
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DEDICATION AND ACKNOWLEDGMENTS

This book is dedicated to Laszlo Berczeller.

Part of the enjoyment of writing a book lies in meeting people from around the world who share a common interest, and in learning from them what is often the knowledge or skills acquired during a lifetime of devoted research or practice. We wish to give deepest thanks...

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This book, no doubt and alas, has its share of errors. These, of course, are solely the responsibility of William Shurtleff.

This bibliography and sourcebook was written with the hope that someone will write a detailed and well-documented history of this subject.
Laszlo Berczeller, a Hungarian food physiologist, was one of the most important pioneers of soyfoods, and especially of soy flour, in Europe. He developed the first widely used soyfood in Europe and he envisioned a much larger role for soyfoods there than anyone had before him. His work in developing and patenting a high-quality soy flour, arranging for its production in various countries, and making its many virtues well known, played a key role in introducing soyfoods to the Western world and making soy flour the most widely used soy protein food there today.

An overview describing Berczeller’s work in the larger context of the history of soy flour in Europe is given in our History of Soy Flour.

**Birth, Genealogy and Early Life.** Laszlo Berczeller (also known by his German first name, Ladislaus), was born on 9 Aug. 1890 (according to his marriage certificate) in Budapest, Hungary, to a wealthy Jewish medical family. As is common in Hungarian (and Chinese, Japanese, and Korean), he wrote his name (as on his personal bookplate—*Ex Libris*) with his surname first: Berczeller László. His father was Imre Berczeller, a doctor (an ob-gyn) and his mother was Josefa née Deutsch. Josephine’s father was Samuel Deutsch, a wealthy broadcloth merchant; a painted portrait of him still survives at a museum in Budapest. Laszlo’s parents had three sons of whom László ("Laci") was the oldest, the next Pál ("Pali") and the youngest Antal ("Anti"). A small photo of the three boys still survives.

Note: Laszlo Berczeller’s earliest biographer (Arnould 1960) gives Laszlo Berczeller’s birth date as about 1885 in Budapest. His second biographer (Baruk 1974) gives the birth date as 1885. Neither of them gives the exact date of birth. We believe the date of birth on Berczeller’s marriage certificate (9 Aug. 1890) is the one most likely to be correct.

Laszlo married Selma née Buchwald on 5 Feb. 1918 at the head synagogue in Vienna (*Stadtempel*). Born on 8 Feb. 1892, her father was Ignatz Buchwald and her mother was Rosa née Jeiteles. At the time of the marriage, Laszlo resided at IX Borschweg 7 in Budapest, and his bride, Selma, resided at IX Funfschaller? 1 in Vienna (marriage certificate); they had no children.

**Early Interest in and Work with Soyfoods (1913-1923).** His interest in soyfoods was piqued in 1913 when he attended a soyfoods dinner at the Japanese Club in Berlin. There a Japanese professor described the various foods, including soymilk, to him, which prompted him to later study their nutritional value (Berczeller 1921; Ferree 1929). By 1914 Dr. Berczeller was a Professor of Biochemistry on the Medical Faculty of the University of Budapest. He was well known and respected in his field, with many publications relating to foods (including lecithin) and nutrition. During World War I (1914-18), he worked for the Austro-Hungarian government as a food physiologist, probably in Vienna, where he continued his research and publications. Apparently during the war he became deeply interested in adapting the soybean to European eating habits in order to provide better and less expensive nourishment for the starving masses of Europe. After the war, from 1918 to early 1920, he worked in the laboratory of a Dr. Wassermann in Vienna studying blood proteins (Prinz 1944; Arnould 1960) and as assistant to Prof. Franz Tangel. While working at the Physiological Institute of the University of Vienna, he probably learned about the work of Prof. Friedrich J. Haberlandt who, although he had died in 1878, also taught in Vienna and left a strong legacy of interest in soybeans and soyfoods.

In about March 1920 he went to work for Robert Graham in Vienna. Since the mid-1890s Graham, a chemist, had searched for the most nutritious forms of food. He and his staff of chemists in Vienna were investigating soyfoods, especially soy flour, as “a nutritive, inexpensive food for the starving children of Austria and Central Europe . . . and for the starving millions in Russia” (Graham 1921). It is not clear at the time when Berczeller and Graham started working together which of the two men knew the most about and had the greatest interest in soyfoods. Soon, however, the interest was strong and mutual. On 20 Jan. 1921 Berczeller (PhD of Vienna, Austria) applied for his first patent related to soy, an Austrian patent titled (in translation) “Process for improving soy beans.” It was issued on 25 April 1927 as No. 106,346).

A few days later, on Jan. 26 Berczeller and Robert Graham (the latter of Haymouth, Scotland) applied for a similar German patent. It was issued on 15 Nov. 1924 as No. 406,170.

Two months later, on 7 March 1921 Berczeller (of Vienna) applied for his 3rd patent, an Austrian patent titled (in translation) “Process for manufacture of a mixed bread from soybeans.” It was issued on 25 June 1924 as No. 97,252.

Three years later, on 1 March 1924 Berczeller (now of Budapest, Hungary) applied for a British patent titled “Improved treatment of soy beans.” It was issued on 28 May 1925 as No. 234,202. Soy beans are heated then subjected to saturated steam for 10-12 minutes. They are then bolted and ground. This is the earliest known English-language document related to Berczeller and soy.

By late 1921 Berczeller, Graham, and the staff of chemists had developed three products: soymilk, soy flour, and a bread containing soy flour. The products were called, respectively, Manna Milk, Manna Flour, and Manna Bread.
Although Berczeller was primarily a scientist at this time, he had begun to develop what would become a lifelong flair for publicizing his soyfoods work in a big way. On 28 September 1921 two articles about Berczeller and his work appeared in the Times (London). The first, a long (2100 word) article written by him, was titled “‘Manna’ food. Products of the Soya Bean. Bread, Flour and Milk” (pp. 11-12). The second, written about him, was a sort of preface titled “‘Manna’ for the Hungry” (p. 11, col. 3). The soymilk was said to be manufactured in Vienna at one-sixth the cost of cow’s milk, to be indistinguishable in taste from fresh milk but with an almond-like flavor, to be used with tea, cocoa, puddings, or ice creams, and to be preferred by animals to the best powdered milk. The whole soy flour, 40% less expensive than wheat flour in Vienna, contained 40% protein and 20% fat. The bread, less expensive than any other on the market, was said to be good tasting, readily digestible, and long lasting, staying fresh for 2-3 weeks.

The Times preface to the article stated that Berczeller was “working in a laboratory specially placed at his disposal by the Austrian Minister of Public Health and his studies are being watched with lively interest by the British Minister and the American High Commissioner in Vienna.” The next day a letter, somewhat reprimanding in tone, from Robert Graham (apparently an Englishman then living in London) appeared in the Times, stating that for the last 18 months Berczeller had been employed solely by Graham and that Graham was prepared to make a free gift of his processes for making Manna foods to alleviate the distress of the starving millions of Russia.

By April 1920, the month after he began working with Graham, Berczeller was chastised in a letter from the Dean of the Faculty of Medicine at the University of Vienna for working for high wages and a share of the profits as an experimental scientist in a private food manufacturing firm (Graham’s), instead of establishing an institute for experimental therapy, as he was supposed to. In May 1921, Berczeller was asked to vacate his university laboratory. He was now fully involved with soyfoods.

Berczeller believed that soyfoods would never be accepted in Europe unless careful nutritional experiments were done to demonstrate their high nutritional value. Therefore, while working with Graham and with the Physiological Institute of the University of Vienna, he began nutritional studies, while continuing his work on developing new soyfood products. His first publication on this subject appeared as a series of three articles, starting in October 1921 in the Wiener Klinische Wochenschrift (“Viennese Clinical Weekly”); it was published in expanded form in 1922 in the prestigious Biochemische Zeitschrift, under the title “Investigations on Soy Flour.” Here Berczeller stated that he had developed a method for producing a soy flour that had no unpleasant flavor. He noted that since Haberlandt had introduced the soybean to Europe in 1878 there had been many attempts to make the remarkably nutritious soybean useful as a food there, but without success. Attempts had been made to introduce Japanese and Chinese soyfoods but they had not caught on. “The soybean must, above all, be a food for the people, like the potato, and it will surely play this role as soon as its biological shortcomings are eliminated.” After citing the work of Osborne and Mendel, and of Daniels in America, Berczeller described an experiment in which he fed rats three soyfoods: whole soybeans, common soy flour (ground raw soybeans), and his patented soy flour “O.” The animals showed a marked preference for his product, and those that consumed the largest quantities of it lived the longest. He concluded that, “With its low cost, high nutritional value, and extreme ease of use in cooking, soy flour meets all requirements for a good food. Practical research must now determine whether and how it can best prove itself in human nutrition.”

Between 1921 and 1925 Berczeller also published various articles on soy flour in Hungarian-language journals: “On the Biological Effects of Foods” (Therapie 1921/22), “On Soybeans” (Herba 1923), and “The Significance of Soya for the Nourishment of the People.” (Therapie 1925).

New Alliances and Progress. In about 1923 Berczeller appears to have become independent of his early employer, Robert Graham, and struck out on his own. The fact that no mention is made of Graham by any of Berczeller’s later admirers and biographers indicates that there may have been a falling out between the two. More than ever, he devoted his attention to his work with soyfoods, especially soy flour.

Starting in April 1923 a baker in Vienna began to make and market a soy bread, containing 20% soy flour (produced under a secret process) and 80% wheat flour. Three months later the output had increased to a remarkable 10,000 loaves a day (New York Times 1923). Was this Berczeller’s first independent project?

On 10 April 1924 Berczeller applied for his first patent in the United States. Titled “Treatment of Soy Beans” (for making soy flour), it was issued on 16 Sept. 1924 (No. 1,509,076). Some of Berczeller’s research during this period was aided by the laboratories of the Skoda Foundation in Czechoslovakia.

During the 1920s and 1930s a general consensus developed among experts in the field, in Europe and the United States, that the soy flour developed by Berczeller and Graham (and later that patented by Berczeller alone) was by far the best to date. The new processing techniques had solved all at once a number of problems inherent in the soybean. This was the West’s first soy flour that was free of the disagreeable beany flavor; it had a pleasant, slightly nutty and sweetish flavor. It would also stay fresh for up to 20 months at room temperature after milling, without the natural oils in the flour becoming rancid. In addition, the processing inactivated the soybean trypsin inhibitors, giving
a flour with a high nutritional value, and improved the flour’s digestibility (Bailey et al. 1935). The result was a whole (full-fat) soy flour with a creamy color. Berczeller’s process was remarkably simple and natural: cleaned soybeans were subject to the action of saturated steam for such a short time (12-15 minutes) that they absorbed only a very small amount of water and their protein was left largely unchanged. They were then dried, cracked, dehulled, and ground to a flour. By 1926 Berczeller had improved his process by subjecting the beans or flour to distillation by drying with moving air to remove off flavors; this technique was patented in 1933.

During the early 1920s Berczeller began to travel to promote his ideas about soyfoods and soy flour. In 1924 he attended a soyfoods dinner given by the British Empire League in London; Winston Churchill was also present. The event later led to some media publicity in the Times for soyfoods (Arnould 1960).

Starting in 1923 a steady stream of letters and scientific articles praising Berczeller’s soy flour and his work began to appear throughout Central Europe. It is not clear to what extent Berczeller solicited these and to what extent they were written voluntarily and independently. In 1923 Roszony in Budapest showed the pale yellow flour to contain 9.0% moisture, 45.5% protein, 22.4% fat, 0.145% lecithin/phosphoric acid, and 4.8% ash (Loew 1928). In early 1924 Alfred Schwicker, General Manager of the Royal Hungarian Food Ministry, and Dr. Stefan Weiser, Director of the Royal Veterinary Physiological Experiment Station in Budapest, both wrote glowing letters of recommendation for Berczeller’s new soy flour to top Hungarian food officials (Loew 1928; Ferree 1929).

Berczeller also received strong public and scientific support from his colleagues in Vienna: Dr. Helene Wastl and Prof. A. Durig of the University of Vienna Physiological Institute; Dr. V.F.A. Richter from the Food Institute; and Dr. H. Prinz and Dean Ernst Kupelwieser of the Institute of Pharmacology. In 1925 Wastl published “The Economic Significance of Soy Flour in Germany” in a scientific journal and in 1926 “Soy Flour as a Food” in the Viennese Medical Weekly. After stating (incorrectly) that Berczeller’s flour was made by “fractional distillation,” she gave a nutritional analysis, and the cost of 100 calories from various food sources, showing that soy flour was the least expensive source of calories; 100 calories from the soy flour cost only about 7% as much as 100 calories from lean beef, and that 100 grams of protein from soy flour cost only 3% as much as from lean beef. She mentioned that soy bread (Sojabrot) made with the soy flour was tastier and lasted longer than regular. In 1926 Prof. A. Durig wrote a 13-page article, “The Soy as a Foodstuff,” praising Berczeller’s soy flour and his larger work, noting that the flour had kept for two years at room temperature in his laboratory without turning rancid, adding that it held great promise for public institutional feeding programs, as in hospitals and prisons. In 1927 Wastl and Kupelwieser did independent analyses of Berczeller’s soy flour. It was shown to contain an average of 44.8% protein, 21.8% fat, and 5.17% ash on a moisture-free basis (Loew 1928). In 1926 Giasotto discussed the nutritional value of Berczeller’s soy flour and its potential importance to Italy.

During the 1920s there were severe famines in the USSR, especially in 1921-22 and in 1926, when millions died of hunger. Berczeller had been interested in the USSR since the early 1920s, when he worked with Graham. In 1926 the USSR began to take a great interest in soybeans and began large-scale cultivation. That year Berczeller visited the USSR (presumably they invited him, knowing of his expertise in the fields of soyfoods and European food supplies) and presented a speech on soy flour to the Council of Professors of the Chief Economic Advisory Council in Moscow. It is not known how long Berczeller stayed in the Soviet Union during his first trip, but it is known that he returned there in 1930 and was given the title “Honorary General of the Red Army” (Arnould 1960).

Starting in 1927, after Berczeller’s return from the USSR, the number of articles about his work and flour began to increase. In 1927 Wastl wrote “Long-Lasting Soy Flour,” Kupelwieser wrote an article by the same title, John Freud in Ireland discussed Berczeller’s flour in a French medical article on soy flour, and Horvath discussed Berczeller’s work and flour at length. Dr. T.R. Parsons, Professor of Medical Research at McGill University in Canada, writing in Britain’s esteemed medical journal The Lancet, praised Berczeller’s soy flour as being the world’s least expensive source of protein. In 1928 Prof. Neumann, Director of the Government Hygiene Institute in Hamburg, in extensive and carefully designed nitrogen balance metabolism experiments comparing Berczeller’s whole soy flour with solvent-extracted, defatted soy flour and whole soybeans showed that, for both humans and rats, the former was significantly more nutritious and its protein was much better utilized. Rats lived 50% longer on whole soy flour than on defatted. Also in 1928 Dr. Josef Szanto in Hungary discussed the use of Berczeller’s flour in diabetic diets. A number of these writers praised this whole soy flour as a very concentrated source of calories, containing 4,730 kcal/kg as compared with 8,000 for butter, 3,900 for sugar, and 3,400 for wheat flour.

In Horvath’s influential 1927 article, he noted basic ways and proportions in which Berczeller’s flour could be used, and provided a nutritional analysis. One commercial producer was listed as being in operation at Deak-tes 1, Budapest V, Hungary. Berczeller claimed that his flour had no fattening effect despite its high fat content—a fact supposedly due to the particular quality of its lecithin and oil which enabled the human body to utilize them in the organs and tissues instead of storing them as fat. Horvath also noted comments by the Food Ministry of the Hungarian Government, “The soybean flour prepared according to Prof.
Berczeller has to be used as a first class popular foodstuff from both points of view--of public health and technology of the foodstuff. The nutritive value of one kilo of Berczeller’s soybean flour is equal to two kilos of meat plus a half kilo of wheat flour, but the price of this soybean flour was in 1922 in Austria equal to about one-twelfth of the corresponding price for meat. . . Austria and Hungary are planning to start a very intensive utilization of Berczeller’s soybean flour. This flour, being cheap and easy to manufacture in native rice mills, may be of great importance to China.” One hundred pounds of whole soybeans yielded 85 pounds of the flour.

In about 1928 Berczeller began to increase his efforts to promote the use of his soy flour throughout Europe and the World. That year Loew in Vienna compiled a 13-page collection of “Expert Opinions on the Berczeller Soy Flour,” which included a bibliography of 25 publications on the subject. Also in 1928 Berczeller began compilation of three volumes of excerpts from previous publications and special new articles on the subject of soy flour in general and his product in particular. Every conceivable aspect of the various relevant subjects was covered. Volume I, compiled in 1928, contained 13 articles (68 pages), including new articles on “Economic Aspects of the Alimentary Problem” by Freud, “The Use of Berczeller’s Soy Flour for Bread Making” and “The Introduction of Soy Flour in Relation to Social Policy” by Frankfurter, plus numerous others. Volume II, compiled in 1929, contained five articles (25 pages), including articles on “The Introduction of Berczeller’s Soy Flour to Italy” by Kramer and “On the Use of Berczeller’s Soy Flour in War Time” by Dienfeld. Volume II, from 1930, contained seven articles (34 pages), including “Soy Flour. Its Value to the British Confectioner” by Ford and “The Significance of Berczeller’s Soy Flour for Great Britain” by Prinz. Bound with these publications were Loew’s compilation of “Expert Opinions” an additional set of publications on soy flour from periodicals and newspapers, and an 11-page article by Berczeller on the founding of the Nutritional-Physiological Laboratory at Vienna.

Armed with this extremely impressive array of well-documented studies and articles by reputable scientists, Berczeller put his promotional machine into high gear. As his co-worker Prinz (1944) described it: “He started bombarding governments, scientific institutions, prominent men all over Europe, and even the League of Nations, with letters and scientific papers and pamphlets, describing the extraordinary value of the soybean and of his new, durable soy flour. He explained that soy protein is the only vegetable protein completely utilized by human digestion and equivalent to animal protein. He figured out how many pounds of meat, how many pints of milk, and how many eggs can be replaced in their nutritional value with one pound of his flour. Many of the arguments and facts used today originated with him and his collaborators. But he did not stop there. He developed methods for using his soy flour in the food industry and in institutional and home cooking. He found people with money who formed companies for manufacturing and selling his soy flour, first in Austria and Hungary, then in Holland, England, Germany, Czechoslovakia, and finally in the United States.”

Various references show that in 1928 Berczeller (followed by others) first began to use the term “Edelsoja,” which would later become the name of Germany’s most widely used soy flour. In German, the adjective edel means “noble, precious, or superior,” and the verb veredeln means “to ennoble, improve, enrich, refine, or purify.”

In 1929 The Soya Bean and the New Soya Flour by C.J. Ferree (translated from the Dutch by the author and J. T. Tussaud), was published by Heinemann in London. The 80-page book described the flour and its many uses, gave formulas for using the flour in the food industry and foodservice institutions, and included 9 pages of home recipes. Unfortunately it contained almost no information about Berczeller or how the flour was made. A laboratory analysis done in London in January 1929 showed that the flour contained 44.2% protein, 20.6% fat, and 11.1% moisture. It was recommended that the flour be used at the 10% level in breads, although almost no difference was said to be noticed at 20%. Adding 10% soy flour to whole wheat bread increased the protein in the bread by 24%, i.e. from 14.5-18.0%, while in white bread it increased the protein by 28.6%, i.e. from 12.3-15.8%. Because soy flour replaced part of the milk, the bread cost less, and it stayed fresh longer. Also in 1929 Prinz published an article on “Making the Nutrition of the People More Rational through Soyfoods and Soy Flour.”

During the late 1920s, in addition to his extensive work with soy flour, Berczeller was also deeply interested in Europe’s larger food problems. His outlook was truly Continental. In 1926 Berczeller and Wastl, apparently both then from the University of Vienna Physiological Institute, published a two-part article “On the Problem of Nutrition in Europe,” which was published as a separate 20-page booklet in 1927. They discussed nutrition and political economy, did statistical analyses of exports, imports, and national food self sufficiency in both protein and calories. They asked big, new, important questions, and their findings showed conclusively that Europe’s agricultural base could not begin to feed its people, who were in fact less well nourished than before World War I. During this same period Berczeller wrote a 191-page book on Basics for Teaching the Influence of Foodstuffs, published in Budapest.

Production of Berczeller’s Soy Flour. By the early 1930s Berczeller was widely recognized as being the foremost expert on and proponent of soyfoods in Europe. He now began to focus his attention on expanding commercial production of his flour. We have seen that some of his flour was probably being made in Vienna as early as 1923, and in Budapest by 1926 or 1927. In 1929 plants were busy in
both places, and a second plant was under consideration in Budapest because of the large demand there (Food Manufacture 1929). According to Neumann (1928, Archiv fuer Hygiene), Hansa Muehle defatted soy flour and Berczeller’s whole soy flour were the two most popular soy flours in Germany during the 1920s. It is not clear where Berczeller’s soy flour was being made in Germany at this time. In 1929 Soya Foods Ltd. and the Soyolk Society in Rickmansworth, Herts (North London), England, finished building a factory and began to produce Soyolk brand soy flour by the Berczeller process, using a special milling technique. By 1932 Soyolk was reported to be used increasingly in English foods, partially to replace eggs, milk, and chocolate. In 1929 or 1930 the Soyex Company brought Berczeller’s process to the US and built a plant in Nutley, New Jersey. By the mid-1930s they were making Soyex flour, pound cake, thickened salad dressing, Soyex chocolate drink, health cookies, sugar cookies, and soy-fortified bread.

By 1930 the soy flour was also being produced in Germany and The Netherlands (Food Manufacture 1929 Jan., 1929 Feb., 1931; 1932; Horvath 1931b, 1933; Gray 1936). In 1931 Kon and Markuze purchased Edelsoja brand soy flour, made by the “secret Berczeller process” from the Austrian Soja-Aktiengesellschaft in Vienna. Their analysis showed it to have a biological value of 1.57.

Berczeller continued to be issued patents until 1933 (Canadian patent 329,530), and continued to work on improving his soy flour process until about 1936. He studied and resolved a number of side problems connected with soy flour production; special milling techniques, utilization of by-products, uses of soy protein as adhesives, and difficulties in nutrition and in the psychology of flavor. Some of the patents that he applied for and was issued during the late 1920s and 1930s, listed by country and date of application, include:


Czechoslovakia: “Process for Improving Soybeans” (1928 issued; No. 25,880).

Austria: His wife, Selma, was granted an Austrian patent on a “Process for the Refining of Oil, Especially that Containing Coagulable Protein” (1929; No. 133,383).

During the late 1920s and early 1930s, as Berczeller’s soy flour came to be produced throughout Europe, he traveled much more extensively. He arranged interviews with heads of state and key industry leaders to discuss his work with soyfoods, while methodically studying possible applications in various countries and larger food questions. In 1927 the Italian Ministry of War established a Commission for the Study of Soya (Commissione per lo Studio della Soja). They published a 75-page article in the Journal of Military Medicine (Giornale de Medicina Militaire) on soy flour, soy bread, and the results of feeding Berczeller soy flour to human beings. In early 1929 Berczeller met with Mussolini, who declared his intention of introducing legislation to require the use of soy flour in the manufacture of polenta (the corn/maize staple food) and of bread (Food Manufacture 1929). He also visited Joseph Stalin, President Franklin Roosevelt’s secretary Dorothy Thompson, and numerous army personnel worldwide. He lived for a long time in London and by 1932 had many contacts with members of the conservative party, who envisioned a food policy and politics for Europe. In 1929 he contacted top people in the French government about using soy flour for human nutrition. He also traveled to Romania, Bulgaria, Yugoslavia, and Portugal, always teaching and learning about soy. For specialists he demonstrated recipes for using soy flour in bread, biscuits, macaroni, chocolate, pastries, sausages, soups, sauces, mustard, tidbits, etc.

In 1931 Horvath wrote “Soya Flour as a National Food,” the best overview to date of the use of soy flour, with a detailed review of the uses in Europe and of Berczeller’s Soyolk. He found Soyolk to contain 42.1% protein and 19.6% fat. He praised Berczeller for his noble gesture of making a gift of his patented procedure to the Children’s Welfare Society in Hungary, and reported that F.A. Richter, baking expert at the nutrition laboratory of Vienna, had done extensive testing using various percentages of Soyolk in bread, detecting no change in flavor or texture. Reported advantages of using Soyolk were longer keeping qualities, higher bread yield, higher “caloric value,” better “bloom” on the crust, lighter dark rye breads, and all this with good flavor. Moreover, using the recommended 6½-18% Soyolk saved money by reducing usage of milk, eggs, oil, milk, yeast, and malt. Up to 50% Soyolk had been used in sausages, acceptably. Professor Moll of the State Institute for Mothers and Children in Vienna obtained very good results using Soyolk in diets of weak and tubercular children.

All this was good news. However, the fact that Berczeller had developed a high-quality flour and was having it produced and publicized, did not mean that it quickly became widely used. “The main obstacles to its spread were the conservatism of the prospective users, bakers, and other food manufacturers, as well as managers of restaurants, hospitals, and other institutions, and--last but not least--housewives: and the indifferent or even hostile attitude of the respective governments.”

Furthermore, the fact that Berczeller’s process was carefully protected by patents did not spare him from legal
problems. Soy flour manufacturers in Great Britain, the Netherlands, and the US claimed that their processes, while close to that developed by Berczeller, were sufficiently different that they did not have to pay him his licensing fees. Severe legal battles ensued in the early 1930s and Berczeller lost all three cases. In each case his powerful industrial adversaries attempted to besmirch his name and scientific reputation, and he suffered greatly. Wearied by this struggle, he did not publish his later process improvements, preferring to keep them secret (Arnould 1960).

However, he won a court case in 1934, in Germany, where his work triumphed. His patents had been used by the Hansa Muehle company of Hamburg to manufacture his full-fat soy flour, which was apparently sold under the name Edelsoja (“noble soy”), a term reportedly coined by Berczeller in about 1928 and later used as the name for the soy flour extensively used by the German Army (see Chapt. 47). It is not clear when Hansa Muehle started making soy flour under Berczeller’s license or how much they eventually made. In 1932 Dr. Hans Weiss— for many years the well-known head of the German Federation for Food Laws and Food Education in Bad Honnef— and some of his friends evolved the idea of making and selling soyfoods in Germany. For this purpose they founded the firm Edelsoja that year; it was run for the next 40 years by Walter Klein. It is not clear what relationship existed between Berczeller and the principals of this firm or how they acquired the rights from Berczeller to use the name “Edelsoja.” Was Berczeller one of the founders?; a stockholder?; a consultant? In any event, a number of his products, based on soy flour, were sold by the firm and their excellent quality was widely recognized (Arnould 1960; Edelsoja 1976).

Shortly after Hitler came to power in the mid-1930s, the huge and powerful I.G. Farben-trust, a company which controlled most of the chemical industry in Germany and was interconnected with most of the chemical industry all over the world, acquired the license to the Berczeller patent rights for Germany, Austria, and possibly some other countries (Prinz 1944). Because Germany had a chronic protein and oil deficit, the country imported roughly a million tons of soybeans as a reserve before World War II. A large percentage of these soybeans was reportedly treated by the Berczeller soy flour process, a real tribute to his vision yet an ironic tragedy that his humanitarian efforts would end up supporting the violence and anti-Semitism of the Nazis (Arnould 1960). It is not clear, however, why the Edelsoja soy flour mentioned throughout the German Army Soya Cookbook (Oberkommando 1938) reportedly contained 61.5% protein, when that made by the Berczeller process typically had only about 45-46%. In any case, as the clouds of war gathered over Europe, interest in Berczeller’s soy flour grew dramatically.

In 1932 Berczeller made important contacts with people in France, especially M. Arnould, who would later be his biographer. Berczeller asked that his work with soy be presented to various French scientific organizations. One of the principal objectives was the development of a bread fortified with 5% soy flour to be used by the French Army. However France was then plagued by agricultural surpluses so it was suggested that Berczeller’s ideas be filed to be reconsidered when the next war broke out! That was exactly what happened. In 1932 Berczeller shared with Arnould some of his large scale plans. He was extremely interested in various international organizations and foresaw the need for an international laboratory for the study of nutrition and food. He explained that he would someday like to bequeath his fortune, which was very large, to such an organization. His ideals and goals were in close accord with those of the International Institute for Food and Agriculture prior to 1939 and of FAO after the War. He was extremely interested in India, and he confided to Arnould in 1932 that introducing soyfoods to India might be the main goal of his life.

In 1934, as anti-Semitism was increasing in Germany, Berczeller was divorced by his German wife, Selma, who turned pro-Aryan/Nazi (Arnould 1960). This was a great blow. She may have ended up working with Meals for Millions at Cal Tech in California under the name Madame Soulange Berczeller (de Kruif 1945; Pearl S. Buck 1949).

By the mid-1930s Berczeller’s soy flour was widely praised in the USA, although little is known of the amount produced by the Soyex Company in New Jersey. In 1935 Bailey, Capan and LeClerc wrote a very influential article about soy flour; in their opinion, Berczeller’s soy flour was the world’s finest.

In 1936 the British writer Gray noted that “On the Continent, the most popular method of using soy flour is in the form of Prof. Berczeller’s patent soy flour . . . I am informed by the Commercial Secretary to the British Embassy in Berlin that a well-known firm, the Edelsoja-Praktikum of Berlin, after scientific investigation, has adopted Professor Berczeller’s flour as a regular human food and is in the course of placing their methods and proposals before British firms.” An ad in Gray’s book stated that Soyolk was the pioneer edible soya flour. It was sold in 1-pound cartons with recipes for use in diabetic and vegetarian diets. Soyvita was a special bread made from a mixture of 22% Soyolk with 78% wheat flour.

In October 1939 Mr. Arnould asked the National Center for Scientific Research (CNRS) to invite Dr. Berczeller to France. He arrived in Paris via Geneva with an introduction from the Secretary General of the League of Nations. He worked with Arnould and others at Toulouse in 1939-40 on a program of soybean growing in Southern France. During part of this time he worked and studied in Paris, at CNRS and with Prof. Cliouard, concerning the introduction of soy flour in the army’s food.

Berczeller as a Person. From all accounts, Berczeller...
was a remarkable man. Prinz (1944), his colleague in Vienna, described him as an idealistic and dynamic man, such that almost everyone who met him was strongly attracted by his personality and ideas. Arnould (1960) stated that “Dr. Berczeller was certainly a very remarkable person intellectually and morally. His large scale programs for the scientific study of food proteins and economics were but a projection of his personality on the social reality of the world. In his domain he succeeded technically, scientifically, and practically. He foresaw the future clearly. He was almost a hero and prophet of the drama of the underdeveloped and undernourished countries, and offered one of the keys to the solution to this problem. His breadth of knowledge was vast in both his area of specialty and in such human fields as history, politics, and art. He had an insatiable curiosity. He read a lot and quickly. He spoke Hungarian, German, English, and fairly good French. He published some 280 scientific journal articles. He was also a pioneer in biometrics and in the statistical and economic study of food and agriculture in various countries. He maintained a perpetual faith in the potential of international organizations and the fecundity of the international point of view over that of the individual nation states.”

World War II and Aftermath. The invasion of France and the Nazi occupation from June 1940 stopped Berczeller’s work with soy. As a Jew, he was forced into hiding until after the Liberation in the spring of 1945. For a while in 1940 Berczeller worked with the Quaker Aid Service, a group near Toulouse trying to import soy-based infant formula from the US. The Quakers helped him greatly, but were unsuccessful in trying to rectify injustices to him. The war period took a great toll on him; he emerged malnourished, physically wasted, and beset by attacks of asthma and bronchitis. The greatest potential for the use of soy flour in Europe came after the war, when entire nations suffered protein-calorie malnutrition. But Berczeller was too weak to supervise such work and, according to Arnould, human and political complications and incompetence, time and again prevented soy flour and soybeans imported from the US from being able to help combat malnutrition and hunger (Arnould 1960).

Professor Berczeller was impoverished as well as being sick and unknown. In 1947 he told Arnould that he estimated his unpaid royalties from Hitler’s German soy flour producers amounted to 5 million pounds sterling; he finally recouped the rights but never the money he was owed.

In Switzerland in about 1948 he underwent an operation for a pulmonary fistula following a thoracic traumatism originating in his asthma and complicated by cardiac problems. He recovered partly but, old, sick, and ruined, he gradually lost his equilibrium and was no longer able to conduct his complex and delicate affairs and studies. One day in 1949 he fainted in the Paris subway. He was hospitalized at the Lariboisière Hospital. In 1951 he was sent to a psychiatric hospital in Saint Remy.

In 1953 Dr. Berczeller came under the care of Prof. H. Baruk, who wrote in 1974 (in French): In 1953 Prof. Verzar, of the Institute of Physiology at the University Basel (Bâle, Basle, Switzerland), moved by the sad condition of Dr. Berczeller, asked us to take him into our care. We promptly installed him in the best possible room under our care at Saint-Maurice [Saint-Maurice Mental Home; Maison de Santé de Saint-Maurice] in Switzerland where he entered on 20 June 1953.

According to the certificates that were sent to us, we have the impression that the actual statements of Dr. Berczeller had sometimes been interpreted as the ideas of a megalomaniac, or one making great claims, because there was talk about mental imbalance, of paranoid tendencies, making great claims, of inability to adapt.

Everyone agreed that Dr. Berczeller would have been much better off in a rest home (maison de repos) in Switzerland but there were no funds.

Dr. Clive McCay, soy flour pioneer from Cornell University, visited Dr. Berczeller while on his sabbatical in Europe. He later wrote: “On Easter Sunday, Prof. Verzar of the University of Basel, invited my wife and me to accompany him in visiting a former Hungarian scientist now confined in a French mental hospital with several hundreds of foreign insane. Much to my surprise the patient proved to be L. Berczeller, whose name I have known for years because of his pioneering work in developing methods for the manufacture of soy flour. The Professor asked me if I thought anyone in the soy industry would be willing to contribute towards housing Berczeller in a private hospital in Switzerland. He says this can be done for about 5 dollars a day. I told him that I was very pessimistic about any altruism from the soy industry since I have long worked with their products and had never had the slightest assistance from them. I told him I believed this industry even lacked enlightened self interest but that I would be glad to present this picture for publication in the Soybean Digest. Dr. Berczeller is often called the discoverer of soy flour” (Baruck 1974). Fifty letters were then sent to soy processors; only one response was received, and that, $10, arrived on the eve of Dr. Berczeller’s death at Saint Maurice Mental Home on 14 November 1955. He died at age 65 (not age 70).

He was buried free of charge (for five years) in the hospital’s graveyard then transferred in 1967 to a place acquired for 10 years by Mr. Arnould. In 1974 the city of Paris was looking for a permanent resting place for this great man, who had worked so hard to try to ease misery and hunger in the world.

Edelsoja, a natural full-fat soy flour, is still sold in Germany today by the Edelsoja GmbH of Hamburg. Since 1973 their sales have skyrocketed. At the front of their corporate brochure is a description of the firm’s origins, but no mention is made of Berczeller and the present owners.
when asked, said they have never heard of him.

Little is known of the influence Berczeller’s work had on postwar soyfoods enthusiasts. By 1947 Winkler in Vienna was making soy flour, but is not known whether or not he used Berczeller’s method. Brillmayer, likewise, was very active with both soybean production and soyfoods utilization.

In 1944 Berczeller’s work came to be known by soybean enthusiasts in the USA via a short article by his colleague Martin V.H. Prinz, “It Began in Vienna: The Dramatic Story of Soy Flour” published in Soybean Digest (March, p. 4).


Today, soy flour (although defatted rather than whole soy flour) is one of the most popular soy ingredients in the Western world. Few realize the major role that Laszlo Berczeller played in bringing this about.

ABOUT THIS BOOK

This is the most comprehensive book ever published about Laszlo Berczeller. It has been compiled, one record at a time over a period of 35 years, in an attempt to document the history of this ancient and interesting food. It is also the single most current and useful source of information on this subject.

This is one of more than 100 books compiled by William Shurtleff and Akiko Aoyagi, and published by the Soyinfo Center. It is based on historical principles, listing all known documents and commercial products in chronological order. It features detailed information on:

- 37 different document types, both published and unpublished.
- 240 published documents - extensively annotated bibliography. Every known publication on the subject in every language.
- 47 unpublished archival documents.
- 6 original Soyinfo Center interviews and overviews never before published, except perhaps in our books.
- 21 commercial soy products.

Thus, it is a powerful tool for understanding the development of this subject from its earliest beginnings to the present.

Each bibliographic record in this book contains (in addition to the typical author, date, title, volume and pages information) the author’s address, number of references cited, original title of all non-English language publications together with an English translation of the title, month and issue of publication, and the first author’s first name (if given). For most books, we state if it is illustrated, whether or not it has an index, and the height in centimeters.

All of the graphics (labels, ads, leaflets, etc) displayed in this book are on file, organized by subject, chronologically, in the Soyinfo Center’s Graphics Collection.

For commercial soy products (CSP), each record includes (if possible) the product name, date of introduction, manufacturer’s name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as advertisements, articles, patents, etc.) are also given.

A complete subject/geographical index is also included.
ABBREVIATIONS USED IN THIS BOOK

A&M = Agricultural and Mechanical
Agric. = Agricultural or Agriculture
Agric. Exp. Station = Agricultural Experiment Station
ARS = Agricultural Research Service
ASA = American Soybean Association
Assoc. = Association, Associate
Asst. = Assistant
Aug. = August
Ave. = Avenue
Blvd. = Boulevard
bu = bushel(s)
ca. = about (circa)
cubic centimeter(s)
Chap. = Chapter
cm = centimeter(s)
Co. = company
Corp. = Corporation
Dec. = December
Dep. or Dept. = Department
DepTs. = Departments
Div. = Division
Dr. = Drive
E. = East
ed. = edition or editor
e.g. = for example
Exp. = Experiment
Feb. = February
fl oz = fluid ounce(s)
ft = foot or feet
gm = gram(s)
ha = hectare(s)
i.e. = in other words
Inc. = Incorporated
incl. = including
Illustr. = Illustrated or Illustration(s)
Inst. = Institute
J. = Journal
J. of the American Oil Chemists’ Soc. = Journal of the
American Oil Chemists’ Society
Jan. = January
kg = kilogram(s)
km = kilometer(s)
Lab. = Laboratory
Labs. = Laboratories
lb = pound(s)
Ltd. = Limited
mcg = microgram(s)
milliliter(s)
mM = millimeter(s)
N. = North
No. = number or North
Nov. = November
Oct. = October
oz = ounce(s)
p. = page(s)
photo(s) = photograph(s)
P.O. Box = Post Office Box
Prof. = Professor
psi = pounds per square inch
R&D = Research and Development
Rd. = Road
Rev. = Revised
RPM = revolutions per minute
S. = South
SANA = Soyfoods Association of North America
Sept. = September
St. = Street
toones = metric tons
trans. = translator(s)
Univ. = University
USB = United Soybean Board
USDA = United States Department of Agriculture
Vol. = volume
V.P. = Vice President
vs. = versus
W. = West
°C = degrees Celsius (Centigrade)
°F = degrees Fahrenheit
> = greater than, more than
< = less than
HOW TO MAKE THE BEST USE OF THIS DIGITAL BOOK - THREE KEYS

1. Read the Introduction and Chronology/Timeline located near the beginning of the book; it contains highlights and a summary of the book.

2. Search the book. The KEY to using this digital book, which is in PDF format, is to SEARCH IT using Adobe Acrobat Reader: For those few who do not have it, Google: Acrobat Reader - then select the free download for your type of computer.

Click on the link to this book and wait for the book to load completely and the hourglass by the cursor to disappear (4-6 minutes).

Type [Ctrl+F] to “Find.” A white search box will appear near the top right of your screen.
Type in your search term, such as Berczeller or soy flour. You will be told how many times this term appears, then the first one will be highlighted.
To go to the next occurrence, click the down arrow, etc.

3. Use the indexes, located at the end of the book. Suppose you are looking for all records about tofu. These can appear in the text under a variety of different names: bean curd, tahu, doufu, to-fu, etc. Yet all of these will appear (by record number) under the word “Tofu” in the index. See “How to Use the Index,” below. Also:

Chronological Order: The publications and products in this book are listed with the earliest first and the most recent last. Within each year, references are sorted alphabetically by author. If you are interested in only current information, start reading at the back, just before the indexes.

A Reference Book: Like an encyclopedia or any other reference book, this work is meant to be searched first - to find exactly the information you are looking for - and then to be read.

How to Use the Index: A subject and country index is located at the back of this book. It will help you to go directly to the specific information that interests you. Browse through it briefly to familiarize yourself with its contents and format.

Each record in the book has been assigned a sequential number, starting with 1 for the first/earliest reference. It is this number, not the page number, to which the indexes refer. A publication will typically be listed in each index in more than one place, and major documents may have 30-40 subject index entries. Thus a publication about the nutritional value of tofu and soymilk in India would be indexed under at least four headings in the subject and country index: Nutrition, Tofu, Soymilk, and Asia, South: India.

Note the extensive use of cross references to help you: e.g. “Bean curd. See Tofu.”

Countries and States/Provinces: Every record contains a country keyword. Most USA and Canadian records also contain a state or province keyword, indexed at “U.S. States” or “Canadian Provinces and Territories” respectively. All countries are indexed under their region or continent. Thus for Egypt, look under Africa: Egypt, and not under Egypt. For Brazil, see the entry at Latin America, South America: Brazil. For India, see Asia, South: India. For Australia see Oceania: Australia.

Most Important Documents: Look in the Index under “Important Documents -”

Organizations: Many of the larger, more innovative, or pioneering soy-related companies appear in the subject index – companies like ADM / Archer Daniels Midland Co., AGP, Cargill, DuPont, Kikkoman, Monsanto, Tofutti, etc. Worldwide, we index many major soybean crushers, tofu makers, soymilk and soymilk equipment manufacturers, soyfoods companies with various products, Seventh-day Adventist food companies, soy protein makers (including pioneers), soy sauce manufacturers, soy ice cream, tempeh, soynut, soy flour companies, etc.


Soyfoods: Look under the most common name: Tofu, Miso, Soymilk, Soy Ice Cream, Soy Cheese, Soy Yogurt, Soy Flour, Green Vegetable Soybeans, or Whole Dry Soybeans. But note: Soy Proteins: Isolates, Soy Proteins: Textured Products, etc.

Industrial (Non-Food) Uses of Soybeans: Look under “Industrial Uses ...” for more than 17 subject headings.
Pioneers - Individuals: Laszlo Berczeller, Henry Ford, Friedrich Haberlanzt, Artemy A. Horvath, Englebert Kaempfer, Mildred Lager, William J. Morse, etc. Soy-Related Movements: Soyfoods Movement, Vegetarianism, Health and Dietary Reform Movements (esp. 1830-1930s), Health Foods Movement (1920s-1960s), Animal Welfare/Rights. These are indexed under the person’s last name or movement name.

Nutrition: All subjects related to soybean nutrition (protein quality, minerals, antinutritional factors, etc.) are indexed under Nutrition, in one of more than 70 subcategories.

Soybean Production: All subjects related to growing, marketing, and trading soybeans are indexed under Soybean Production, e.g., Soybean Production: Nitrogen Fixation, or Soybean Production: Plant Protection, or Soybean Production: Variety Development.

Other Special Index Headings: Browsing through the subject index will show you many more interesting subject headings, such as Industry and Market Statistics, Information (incl. computers, databases, libraries), Standards, Bibliographies (works containing more than 50 references), and History (soy-related).

Commercial Soy Products (CSP): See “About This Book.”

SoyaScan Notes: This is a term we have created exclusively for use with this database. A SoyaScan Notes Interview contains all the important material in short interviews conducted and transcribed by William Shurtleff. This material has not been published in any other source. Longer interviews are designated as such, and listed as unpublished manuscripts. A transcript of each can be ordered from Soyinfo Center Library. A SoyaScan Notes Summary is a summary by William Shurtleff of existing information on one subject.

“Note:” When this term is used in a record’s summary, it indicates that the information which follows it has been added by the producer of this database.

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2. An asterisk after eng (eng*) means that Soyinfo Center has done a partial or complete translation into English of that document.
3. An asterisk in a listing of the number of references [23* ref] means that most of these references are not about soybeans or soyfoods.

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Document Types: The SoyaScan database contains 135+ different types of documents, both published (books, journal articles, patents, annual reports, theses, catalogs, news releases, videos, etc.) and unpublished (interviews, unpublished manuscripts, letters, summaries, etc.).

Customized Database Searches: This book was printed from SoyaScan, a large computerized database produced by the Soyinfo Center. Customized/personalized reports are “The Perfect Book,” containing exactly the information you need on any subject you can define, and they are now just a phone call away. For example: Current statistics on tofu and soymilk production and sales in England, France, and Germany. Or soybean varietal development and genetic research in Third World countries before 1970. Or details on all tofu cheesecakes and dressings ever made. You name it, we’ve got it. For fast results, call us now!

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About the Soyinfo Center: An overview of our publications, computerized databases, services, and history is given on our website.

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BIOGRAPHY OF
LASZLO (LADISLAUS) BERCZELLER (1890-1955)
AND HISTORY OF HIS WORK WITH
EDELSOJA WHOLE SOY FLOUR

  • Summary: See next page. The typewritten caption below this photo reads: “Samuel Deutsch at age 35 in 1871. Copy of a painting by the Hungarian portraitist Miklós Barabás, newly exhibited in the Déri Museum of Debrecen, Hungary.”
  Note: This image was sent to Soyinfo Center by Andrew Lenard of Bloomington, Indiana, a retired professor of theoretical physics and mathematics; he is related to Samuel Deutsch. Andrew’s parents donated the portrait of Samuel Deutsch to the museum when they immigrated to the United States in 1946.

2. Family of Jonas Báron, with Laszlo Berczeller as a child (Photograph). 1903.
  • Summary: See page after next. This remarkable photo of the Báron family was taken in about 1903. The people in the photo are numbered (see image) as follows:
    1. Jónás Báron. He is third from left in the top row,
    2. His wife Karolin (“Ilka”) Deutsch.
    3. Her father Sámuel Deutsch.
    4. Her sister Josephine (“Józsa”) Deutsch, wife of obstetrician Dr. Imre Berczeller.
    5. Dr. Imre Berczeller.
    6. Mrs. Lázárovich, sister of Sámuel Deutsch, also mother of Sámuel’s first wife.
    7. Mária, Sámuel’s second wife.
    8. A piano teacher named Horváth.
   11. Mariska, daughter of Jónás.
  Note 1. In this photo, Laszlo second from left on the bottom row, looks much more like he is age 13 (born in 1890) than age 18 (born in 1885).
  Note 2. This photo was sent to Soyinfo Center on 12 July 2016 by Andrew Lenard of Bloomington, Indiana, a retired professor of theoretical mathematics. Where was this photo taken? Andrew replies: “The only clue I have is a guess, pure and simple. The young man standing center in the back holds a tennis racket. He is my oldest uncle, Sándor Báron who became an orthopedic surgeon in later life, and ended his life in America. From that tennis connection it seems to me that it was likely at Siófok, a small popular vacation spot on Lake Balaton, in Hungary. There the patriarch of the family Samuel Deutsch had built and owned a large villa that accommodated the whole family during summers.”

  • Summary: See page after next two pages. A copy of the original marriage certificate and a summary of the key facts are shown below. The original information is in the records of the Jewish community of Vienna (IKG). Specifically, it is reported in the book Stadttempel (head synagogue of Vienna) in the year 1918, row (line) 40 with the number 414933. An original can be ordered from the IKG. The title of the two-page certificate on page 14 is:
  Wedding register of the Jewish (Israelite) Community of Vienna. (1) Row number: 40, 62.
  (2) Day, month and year of the joining in marriage: 5 Feb. 1918.
  (3) City, lane, street, and number of the building where the wedding ceremony was held: I Pasilan? Hallang? 4.
  (4) Note: We cannot read that address; it is probably in Hungarian or else the German version of a Hungarian street name. Nor can we find anything like it on a map of Vienna.
  (4) Date and location of the public notice of the wedding and precise list of documents provided:
  Public notice at all three.
  Community of Budapest 24 Jan. 1918.
  ? of Vienna 28 July 1917
  ? Telegram ?
  Military ? 1 Feb. 1918
  Banner across the top: Bridegroom.
  (5) Given name and family name, occupation (profession), place of birth, registered community, political district, county, and country, given name and family name of his parents:
    Dr. László Berczeller
    Royal Hungarian senior physician
    Born: Budapest
    Residence: Budapest.

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Samuel Deutsch, Maternal Grandfather of Laszlo Berczeller, 1871
Courtesy of Andrew Lenard
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<th>Altersjahre</th>
<th>Wohnort, Gasse, Straße und Nummer des Hauses</th>
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israelitische Kultusgemeinde in Wien.

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<th>Stand: leibig, Witwe oder geschieden (bei mann)</th>
<th>Wohnort, Gasse, Straße und Nummer des Hauses</th>
<th>Eigenständige Unterchristen des Bräutigams, der Jungen und des Rabbiners, der die Trauung vollzogen hat</th>
<th>Anmerkung</th>
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Vi. Ignatz Böhmwald
Mi. Rosa geb. Schödl

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<tr>
<td>Vorname</td>
<td>Laszlo</td>
</tr>
<tr>
<td>Eltern</td>
<td></td>
</tr>
<tr>
<td>Familiename des Partners</td>
<td>Buchwald</td>
</tr>
<tr>
<td>Vorname des Partners</td>
<td>Selma</td>
</tr>
</tbody>
</table>

*Code: 1=Geburten 2=Trauungen=Eheschließungen=Heiraten 3=Begräbnisse=Sterbefälle=Ableben*
LASZLO BERCZELLER (1890-1955)

Father: Dr. Imre Berczeller
Mother: Josefa née Deutsch

(6) Age and day, month, and year of [groom’s] birth: 9 August 1890.

(7) Marital status: single, widower, or divorced (since when), duration of previous marriage: Single

(8) City of residence, lane, street, and number of building: IX Borschweg 7

Bride across the top: Bride

(9) Given name and family name, occupation (profession), place of birth, registered community, political district, county, and country, given name and family name of her parents:

Selma Buchwald
Born: Vienna
Residence: Vienna
Father: Ignaz Buchwald
Mother: Rosa née Jeiteles

(10) Age and day, month, and year of birth: 8 February 1892

(11) Marital status: single, widower, or divorced (since when), duration of previous marriage: Single

(12) City of residence, lane, street, and number of building: IX Funfshallergasse 1

(13) Handwritten signatures of the bridal couple, the witnesses, and the rabbi who officiated at the wedding ceremony:
Bridegroom: Dr. László Berczeller
Bride: Selma Buchwald
1st witness: Ignaz Buchwald
Occupation: ?
Residence: IX ? 1
2nd witness: Paul Berczeller [perhaps Laszlo’s younger brother, Pál]
Occupation: ?
Residence: Deák Square 1, Budapest
Wedding ceremony officiated by: ?
Vienna, 5 February 1918

(14) Note / Comment: [none].

Thanks to André Guenther / Günther for sending this marriage record summary. And thanks to IKG for sending a scan of the original.

Note: Before 1918 Vienna had been the capital of the Austro-Hungarian Empire. In 1918, after World War I, Vienna became capital of the Republic of German-Austria, and then in 1919 capital of the First Republic of Austria. Source: Wikipedia, at Vienna. Address: Vienna.

• Summary: In searching for Laszlo Berczeller’s PhD thesis we came across this book, written by L. Berczeller. Is he our man?

Note: The Wassermann test or Wassermann reaction (WR) is an antibody test for syphilis, named after the bacteriologist August Paul von Wassermann, based on complement-fixation. Source: Wikipedia. It has been replaced by the Kahn test.

5. Verband deutschösterreichischer Berufsmilitaeraerzte. 1920. [Re: Concerning Dr. Ladislaus Berczeller]. Letter to Prof. Dr. Hochenegg, Dean’s Office, Faculty of Medicine, Vienna, April 29. 2 p. Typed, with signature. [Ger]
• Summary: Dr. Ladislaus Berczeller was originally supposed to have established an institute for experimental therapy. However, apparently because of the high pay and a share in the profits, he is now more interested in the production of foods with a private firm, than in experimental science. Address: Vienna.

• Summary: Note: This is the earliest document (and patent) seen (July 2016) related to Dr. Laszlo Berczeller’s work with soybeans. Address: PhD, Vienna.

• Summary: For this application priority is claimed on the basis of the registration in Austria from January 20, 1921 in accordance with the Union treaty of June 2, 1911.

The unpleasant taste and smell of soy beans are completely removed by treating the swollen or germinating beans for a short time with steam, preferably with saturated steam, so that only a small quantity of moisture is absorbed and the albuminous constituents are not changed. The beans are subsequently dried in the usual manner.

Note: This is the 2nd earliest document seen (July 2015) concerning the work of Ladislaus Berczeller with soybeans.

Note: Soy is mentioned 15 times in this patent in the forms “Sojabohnen” (soybeans) and “Sojabohne” (soybean). Address: 1. Dr., Vienna; 2. Cupar-Fife, Haymount, Scotland [Schottl.].

• Summary: As an example, a bread to which 25% soy flour has been added contains 19% protein and 4.7% fat, and is therefore a complete food.

Soy is mentioned in the forms “Sojabohnen” (soybeans), “Mehl aus Sojabohnen” (soybean flour), “gemahlenen Sojabohne” (milled / ground soybeans), “Sojabohnenmehl”
(soybean flour), “Mehl der Sojabohne” (soybean flour) and “zerkleinerten Sojabohnen” (finely pulverized / crushed soybeans). Address: PhD, Vienna.

9. Ernährungsphysiologie Laboratorium, Dr. L. Berczeller, Ruckstellung der Raeume im Josefinium. 1921. [Re: Concerning Dr. Ladislaus Berczeller]. Letter to Dr. Eduard Weiss, Rechtsanwalt, Vienna, Austria, May 6. 2 p. Typed, without signature. [Ger]

• Summary: Dr. Berczeller is asked to vacate his laboratory in Vienna by Aug. 1. Address: Vienna.


“...We give below a statement which Dr. László Berczeller, a young Hungarian who was assistant to the late Professor Franz Tangl, has made to our Vienna Correspondent on the new foodstuffs which are being made from the soya bean. Dr. Berczeller is working in a laboratory specially placed at his disposal by the Austrian Minister of Public Health, and his studies are being watched with lively interest by the British Minister and the American High Commissioner in Vienna.

“It was in 1913, in Berlin [Germany], that I first turned my attention to the soya as a food. I was the guest of the Japanese Club and a Japanese professor showed me soya food and told me that a milk was made from the bean in Japan... Professor Riegler, also in Hungary, had invented a synthetic milk made from the gluten of wheat. I saw these products were not satisfactory as they only had qualities in the sense of the old theory of calories and protein value of foods.”

Note: This is the earliest English-language document seen (Sept. 2011) that contains the term “soya food” or the term “soya as food.”

“We have fed white rats on beans, peas, and lentils, and we have found that animals fed on beans live shortest and those on lentils longest.” When animals are allowed to follow their instinct, and choose between “the several kinds of legumina... they eat most lentils, less peas, and least beans.”

“It is well known that in the time of the Greeks men still used, of cereals, chiefly barley. Barley was followed by rye, especially in the Middle Ages, and both barley and rye were supplanted by wheat, as in England, as is the case today on the Continent.”

“An ideal food–We now endeavored to apply this knowledge to the soya bean with a view to the food shortage problem. In the chemical sense, the soya is an ideal food. It contains 40 percent albumen and 20 percent fat, and at the same time can be obtained very cheaply. In Japan and China the soya is worked up into a number of very valuable foodstuffs by small industrialists. These foodstuffs do not meet European taste. Probably the Mongolian race has accustomed itself to this food.

“The European foodstuffs industry has made repeated efforts to produce out of the soya a good and palatable food, but every attempt has failed, because the biological factor has been ignored. We could show that most of the processes used for this purpose and for which patents were also taken out, such as for extraction and roasting, only lead to one result; the rats fed with this food have a much shorter life than even those fed with the raw soya.

“We have been successful in creating three foods: bread, flour and milk, in which these principles were taken into account. These foods have been tested not only in the laboratory, but also on man; man, because one does not even yet know to what extent of certainty one may conclude from animal experiments to human beings.”

“The new ‘Manna’ bread which has been produced by Mr. Robert Graham and myself—Mr. Graham’s technical and scientific experience in bread making rendered it alone possible to work out this problem— is the solution of the old standard bread controversy. We do not use the bran, which is already disintegrated by the milling process. We use better proteids than those contained in the bran and we introduce a great quantity of fat into the bread. The bread is cheaper than any other at present on the market.”

“Manna flour contains 40 per cent proteid and 20 percent fat. In the raw state it has a sweet and pleasant taste. It can be used for soups and cooking vegetables.”

“Manna’ Milk—If we give animals the choice between the best milk powder and manna flour, their instinct leads them to eat largely of the later; and if we feed them on eggs or meat and manna flour in a similar colloidal state, they consume more manna flour and less eggs or meat. We deduce therefrom that human beings will find it pays them better to use manna flour. Manna milk is in its proteid, carbohydrate, and fat contents, and in its colour, very similar to cow’s milk. It has an almond-like taste. Used with tea, cocoa, or puddings, ice creams and pastry, one cannot detect any difference from fresh milk. It is now being manufactured and its cost in Vienna will be six times less than fresh milk. It is merely a question of scientific research and manna milk will be biologically perfect also.”

“It is indisputable that the food of the white race is very costly, especially when one compares it with the food which the yellow race is accustomed to. We observe the evil consequences of this difference above all in the United States. It is therefore a matter of the highest political importance that the West should learn the lesson of cheaper living as taught them by the East in the adaptation of the soya bean as an article of food.”

“For fighting the Russian famine the aforementioned foodstuffs commend themselves for widely different reasons:
“1. They can be produced very cheaply.
“2. No other albuminous food can be transported in such concentrated form.
“3. In the form of rusks it would obviate all difficulties arising out of a shortage or stoppage of fuel.
“4. To make a beginning, the foodstuffs could be very quickly produced in Vienna.
“5. The diffusion of these foodstuffs would lead to the permanent cultivation of the soya bean in Ukraine. This would be of great importance to the future provisioning of the whole of Europe.”

Note: “The Russian famine of 1921, also known as Povolzhie famine, which began in the early spring of that year and lasted through 1922, was a severe famine that occurred in Bolshevik Russia. The famine, which killed an estimated 6 million, affected mostly the Volga and Ural River region.

The famine resulted from the combined effect of economic disturbance, which had already started during World War I, and continued through the disturbances of the Russian Revolution of 1917 and Russian Civil War” (Source: Wikipedia, Russian famine of 1921, Nov. 2013). Address: Vienna, Austria.


• Summary: “A few months before the war attention was drawn in these columns to the wonderful food-producing properties of the soya bean. Since its first importation to Europe from the Far East, in 1906, these properties have been closely studied by western chemists, and during the last few years the researches of Dr. László Berczeller, a young Hungarian scientist working in Vienna, have been especially useful in extending the possibility of their further development... Dr. Berczeller is particularly interested in its adaptability as the basis of human food. In this respect its virtues are even more remarkable than as a fodder. Soy bean has been used to produce not only milk, butter and cheese, but flour and what is known as ‘manna’ bread. One part of the manna flour has the same nutritive value as two parts of meat and one third part of wheat flour. Manna milk, he says, is in its protein, carbohydrate, and fat contents and in its colour very similar to cows milk, over which... it has this advantage—that it is free from all suspicion of being contaminated by milk-borne diseases. It is now being manufactured in Vienna at one-sixth as much as cow’s milk and soya bread is 40 per cent. cheaper than wheat bread.”


• Summary: This letter to the editor concerns an article titled “Manna” Food in the Sept. 28 issue of The Times. “Dr. László Berczeller, whose account is given, is and has been for the last 18 months, solely employed by me in Vienna. The work being done there now and the discovery of the ‘Manna’ Food are the result of experiments undertaken by me and my staff of chemists, of which Dr. László Berczeller is one, for the purpose of finding a nutritive, inexpensive food for the starving children of Austria and Central Europe.

“I have spent the last 25 years in search of the most nutritious forms of food, and ‘Manna’ is the result. My desire is that ‘Manna’ should be made available for the starving millions in Russia, as it is the cheapest and most nutritive form of food procurable, and I am prepared to make a free gift of my invention to alleviate the distress in that country.

“I have the honor to remain, Sir, your obedient servant.”


• Summary: London, Sept. 29. This is basically a rewritten version of the following article: Times (London). 1921.

“‘Manna’ for the hungry.” Sept. 28. p. 11, col. 3.

Reports from Vienna, Austria, describe experiments [by Laszlo Berczeller and colleagues] in which flour, bread and milk are made from the soya bean. “Soya milk costs only one-sixth as much as cow’s milk and soya bread is 40 per cent. cheaper than wheat bread.” The soya bean, which will be extensively cultivated in eastern and southeastern Europe, is “the only real solution to the problem of reconstruction”
of Europe after World War I. Address: Special cable to The Toronto Star and the Chicago Daily News.


• Summary: “The leading article and letter in the Times of Sept. 28 from its Vienna correspondent about Manna flour, manna bread, and milk substances made from the Soya bean, are likely to do good if they help us to realise how much we are losing by our neglect of this, the most valuable—for the uses to which it can be put–of all legumes.

“In the letter giving the details of the researches of Dr. László Berczeller of Vienna, there is no reference to the fact that these ‘Manna’ or Soya bean products were first made in England before the war. Samples of the flour and biscuits are to be seen in the cases of the London Institute of Hygiene, and Manna milk has been for years–and, no doubt, still is–sold here under the name of ‘Solac’ at a price considerably lower than that charged for milk by dairymen. The appearance and rapid rise into importance of the Soya bean is one of the most remarkable commercial events of modern times.”

“In 1790 the [soy] bean was brought to Europe when its cultivation was first attempted by Young [Arthur Young, lived 1741-1820 in England], the father of British Agriculture, though without success. In 1878 an Austrian professor, Haberlandt, tried it, but failed [Note 1. Haberlandt did not fail; he successfully cultivated soybeans in Austria as early as 1875, and many times thereafter.] When the bean came here in 1908 there was an immediate rush to grow it both in Europe and America. Experiments were started by our Board of Agriculture, the Royal Agricultural Society, and many semi-public bodies. The early experiments failed completely, for the reason that they were made with seed whose climatic origin was unknown, as well as the orthodox Chinese methods of growing it. Later, this was remedied...”

By 1918 Europeans were aware of 500 different soybean varieties that were growing experimentally at Arlington, Virginia.

“My interest in the Soya bean began in 1913 with a visit from an agent of a German cultivator at the office of the Royal Botanical Society at Regent’s Park. He was, he said, trying to form a syndicate to grow what he called an acclimatised Soya bean, brought from China in 1910, and already in cultivation in Germany. He refused seeds for testing, but sent from Hamburg a plant which had been carefully cleared of the seed, though the empty pods, nearly sixty in number, were left. The syndicate never materialised, and I thought no more of the matter, until later on, whilst examining the dried plant, I noticed a tiny pod, scarcely half an inch long, which contained a seed no bigger than a pin’s head. Going over the plant I found other pods which evidently had been thought too insignificant to be of use, and from these I obtained thirteen seeds. These were sown in 1914 and resulted in thirteen plants, which produced four hundred and forty seeds. From thirty-three plants in 1915 one thousand seeds resulted, and in 1916 no less than twelve thousand. Many experiments as to the value of different methods of growing them were made in several countries, and with no less than twenty-one different foreign varieties. One thing came clear throughout the tests, and that was that the original variety started with was by far the best. It says a good deal for German astuteness that they should have gone to Manchuria and, from hundreds of varieties, chosen the one best for them and for us.”

The future of the Soya bean in England is uncertain. “Natural selection helps the plants that mature earliest produce most seed; those that mature late die out. It is noticeable that the plants experimented with in England fruit earlier now than they did at first, and this is a very hopeful sign. Another satisfactory fact is that there is no lessening in the number of pods produced, but rather a gain. This year there are plants with three times the number of pods shown in a photograph of the best German-grown specimen of 1912.”

In China and Japan the Soya bean “enters into the composition of most dishes, and in one form or another, as Soy sauce, bean paste, bean cheese, bean curd, bean milk, bean wafers, bean cakes and confectionery, is used everywhere. For a hundred years Soy sauce has been imported—the principal ingredient in the well-known Worcester [Worcestershire] sauce.”

Apart from its value as a food, it is used in the manufacture of glycerine, explosives, enamels, varnish, varnish, waterproofs, linoleum, paints, soaps, celluloid, printing inks, and as a lubricant.”

Photos (all but #1 by Frank N. Meyer of the USDA) show: (1) A typical pod from a soya bean plant grown by Mr. J.L. North at Chiswick, England, in 1921. (2) Two large, thin “blocks of tofu (bean curd)” on a round, wooden table. “Soya bean cheese for human food... Ready to be cut up into squares for sale to the public. Tofu, or Soya bean curd, is made by adding magnesium or calcium salts (about a 1 per cent. solution) to hot Soya bean milk; the product is drained and pressed. (3) “Varieties of soya bean cheese on a bamboo tray. Tofu, or Soya bean curd, forms the basis of many fermented, smoked, and dried cheeses in China and Japan.” (4) “Soya bean cheese [fermented tofu] in preparation: A pile of wooden trays full of bean curd in a dark room of even temperature.” (5) “Used by the Chinese as a green vegetable: A basketful of sprouted soya beans.” (6) Soy bean plant with leaves, many pods and roots, grown at Chiswick.

Note 2. This is the earliest document seen (March 2002) written by Mr. J.L. North, the pioneer in cultivating soybeans in England.

Note 3. This is the earliest English-language document seen (April 2013) that uses the term “soya bean cheese” or
the term “soya bean curd” to refer to tofu.

Note 4. This is the earliest English-language document seen (May 2015) that uses the term “magic bean” or with the term “magic bean” in the title, or that uses the word “magic” as an adjective to refer to the soybean.

Note 5. This is the earliest English-language document seen (Jan. 2013) that uses the term “sprouted soya beans” to refer to soy sprouts.

Note 6. Concerning Arthur Young. He was the author of many books on agriculture, which were very influential in their day. He was an important advocate for the progressive agricultural practices of his time, advocating such innovations as the seed drill, improved crop rotations, the use of marl as fertilizer, and the enclosure of open fields. In 1767 he undertook the management of a farm in Essex. He conducted various experiments and published the results in A Course of Experimental Agriculture (1770). In 1784 he began the publication of the Annals of Agriculture, a periodical which was continued for 45 volumes and had many contributors. Young traveled to France during 1787-89 and in 1792 published an important book about his travels and observations there. The soybean was first grown in Paris, France, perhaps as early as 1740, definitely by 1779. So he may have learned about soybean from fellow agriculturalists in Paris while on this trip. Address: Curator of the Royal Botanic Society of London.


• Summary: Includes a summary of results of experiments to ascertain the biological value of soybean flour as food. Address: Austria.


• Summary: “In a recent speech in London Mr. Winston Churchill insisted that ‘it is a matter of the highest political importance that the West should learn the lesson of cheaper standards of living which is taught them by the peoples of the East in the adoption of the soya bean as an article of food.’ He then went on to say that in a recent statement to the Times’ Vienna correspondent by Dr. Berczeller, a young Hungarian, the latter professed to have succeeded in making both flour and milk from the soya bean, and that the bread made from soya bean flour is both palatable and easily digested and can be placed on the market at a price below that of any other kind.”

Note: This is the earliest document seen (June 2016) that mention’s Winston Churchill’s speech about the soya bean. Address: Tokyo.


• Summary: “A Hungarian scientist, Dr. Laszlo Berczeller, recently gave an account of experiments he has made with the soya bean. The nutritive value of this bean has been known for centuries. It comes into prominence today because from it can be made the cheapest and most sustaining food in the world. Great interest has been aroused in this Hungarian scientist’s discovery. Greater interest, will probably be aroused when it is known that Dr. K.R. Shaw, of Harley street, London, has been working out the problems of the food value of the soya bean from the point of view of European consumption for many years.

“In an interview with a ‘Morning Post’ representative, Dr. Shaw told how he first came to be interested in the soya bean and of the experiments he had made to produce foodstuffs from it. ‘I came across the soya bean in Mexico some 20 years ago,’ said Dr. Shaw. ‘I was interested in it because I found that when the natives went on long treks all they took with them were soya beans. These were sufficient for all their wants. I watched how they prepared the beans, and found that all they did was to roast them before eating them. I began to eat the beans myself, and found them both palatable and nourishing. On returning to England I began to collect all the information I could about the soya bean. As my information grew I found that the natives of the various countries, China, Japan, Mexico, were all content to eat the bean as it was after roasting it. It was clear that for Western palates this method would not do. I was also curious to know why they roasted the bean. This I found out by eating the bean raw. I discovered that it contained a large quantity of volatile oil which made it quite unfit for consumption in the raw state. Animals, as well as human beings, could not thrive on the bean until the oil had been taken away. After a number of experiments I discovered a new method for getting rid of the oil. It is simpler than roasting, and merely consists in treating the bean with a certain amount of alcohol. All the wonderful nutritive values of the bean are retained, and for some time now I have been able to produce foods from the bean in a variety of forms.

“These foods are perfectly palatable to Europeans (which has never been the case hitherto with any soya bean product either for animals or human beings). They can be produced in the form of bread, biscuits, or vegetables at prices much below any of those prevailing to-day for the staple articles of diet. A person can live on the soya bean food and be adequately sustained for far longer than on any European food. Children thrive on it, and it is particularly efficacious in the case of those in any way affected by tuberculosis.

“The possibilities of this new bean food are boundless, particularly at a time when foodstuffs are so dear and some of the peoples of Central Europe are starving. I am convinced that the food now to be made from the soya bean will do something, at any rate, to solve the Russian famine...
problem.”


• Summary: Since Haberlandt introduced the soybean to Europe in 1878, there have been many experiments to try to make this wonderful plant (according to its chemical composition) useful to the white race. All of these efforts remain without success, due to a lack of biological research on the soybean. The ideal that this plant represents with respect to its protein and calorie content, is not attained by its other biological qualities—a supposition that must first be proved.

In Japan and China, where the soybean has been used as a food for thousands of years, its production for food lies in the hands of an extensive industry of small processors, which acquired their experience, as is the case in Europe with bakers and brewers, from generation to generation. But because Europe tastes did not accept each of those foods, in their various forms, their popularity did not spread. The European food industry had the same negative results in trying to make use of the soybean. This failure is not surprising since our food industry, partly only practical, partly borrowing its requirements from chemistry, is just becoming able to determine how one should manufacture a new food, but is not good at judging when one food is good and another is not. In these respects, dietetics could also do nothing differently... In the following laboratory experiments, the primary goal is to clarify the circumstances with respect to animals, and from these to draw some conclusions with respect to humans.

The soybean must, above all, be a food for the people, like the potato, and it seems to be called to this role when its biological shortcomings are eliminated.

Rats, given the choice of soy beans, soy bean flour (Sojamehl), and a new soy bean flour with almond flavoring (designated Sojamehl O), consumed the latter in the largest amount and the soy bean flour hardly at all.

Berczeller concludes: It should be noted that for its low cost per high nutritional value, and extreme ease of use in cooking, the soybean meets all requirements which could be placed on a food today. It now rests on practical research to decide if it can prove itself in human nutrition. The scientific prospects are most probable that it can. Address: Physiologischen Inst. der Universitaet Wien.


• Summary: This is a summary for an article from Scientific American [sic]. "'Manna' milk from the soya bean is now being made in Vienna at one-sixth the cost of fresh cow's milk. In proteid, carbohydride [carbohydrate] and fat content, and in color, it closely resembles cow's milk, being, or course, free from milk-borne diseases. Butter and cheese [tofu] can also be made from the bean, and 'manna' flour, one part of which equals in nutritive value two parts of meat and one-third part of wheat flour. So, at least, Dr. Berczeller, a young Hungarian scientist tells us; he designates the soya bean as an ideal food containing 40 per cent albumen and 20 per cent fat."

Note 1. As of July. 2014, we have been unable, searching Google Books and the magazine itself, to find this article in Scientific American.

Note 2. This same article appeared in The Labor Digest. 1922. June p. 40 (Vol. 14, No. 3).


• Summary: A long series of experiments is described in which rats (few in number) were offered the choice of different types of feeding materials simultaneously, as for example, leguminous flour ("meal") and maize flour; a flavored soy flour, maize flour, and milk, flesh or eggs, with or without addition of salts. Rats choose flesh in preference to other foods and often choose unsuitable combinations leading to early death.

These investigations were partially conducted by A. Billig and St. Deutsch. Address: Physiologischen Inst. der Universitaet Wien.


• Summary: From Scientific American: “’Manna’ milk from the soya bean is now being made in Vienna at one-sixth the cost of fresh milk. In proteid, carbohydride [carbohydrate] and fat content, and in color, it closely resembles cow’s milk, being, or course, free from milk-borne diseases. Butter and cheese [tofu] can also be made from the bean, and ‘manna’ flour, one part of which equals in nutritive value two parts of meat and one-third part of wheat flour. So, at least, Dr. Berczeller, a young Hungarian scientist tells us; he designates the soya bean as an ideal food containing 40 per cent albumen and 20 per cent fat.”

Note: This article appears in Scientific American under “Science Notes” in April 1922 (p. 282). However the original source might be the Times (London). 1921 Sept. 28 (p. 11-12).

22. Roszony, -. 1923. Dr. Berczeller’s Sojamehl [Re: Dr. Berczeller’s soy flour]. In: F. Loew, comp. 1929? Einige Gutachten ueber das Berczeller’sche Sojamehl and Expert Opinions on the Berczeller Soy Flour. Vienna: Published by...
the author. 35 p. See p. 4-6. Or p. 6-8 of English translation. Letter to the Royal Hungarian Food Minister dated 15 June 1923. [Ger; Eng]

**Summary:** Tables give an analysis of (1) Berczeller soy flour on a dry weight basis. (2) The chemical composition of a roll, white bread, and brown bread containing 5% whole soya flour made by the Berczeller process. (3) The same table as (2) but on a dry weight basis; both the nitrogen and the crude protein content are given for each; the protein ranges from 13.62% in the white bread to 15.62% in the brown bread.

The letter begins: “Your worship. VIII. In the sequel, I have the honour to report on the results of the test made in the municipal bread factory with the samples of soy flour sent in by Dr. Ladislaus Berczeller and prepared according to his process.

“The soy flour prepared by Dr. Berczeller by his own process is of a slightly yellow colour. Loose and free from any foreign flavour or smell. It is somewhat sweet and agreeable in taste; its chemical composition is as follows: On a dry-weight basis it contains 7.28% nitrogen, 45.50% crude protein (N x 6.25), and 0.145 lecithin-phosphoric acid.

“Microscopic test: no particles of [soybean] skin were found.

“Hence in regard to nitrogen and fat contents the soy flour far surpasses our corn and cereals and differs widely from them in so far as it contains but a negligible quantity of starch. But little starch is contained in the unripe soy bean. 89.58 % of its protein is soluble in pepsin-salic acid and in this it corresponds to the animal albumen.

“The product is of a pale yellow colour and so can be used mixed with wheat-flour both in making pastry or puddings, or in baking bread. It does not spoil the colour but imparts a slight shade of pale yellow to the pastry as though eggs had been used.

“It also contains the characteristic ingredient of the yolk of eggs: Lecithin.

“As this table shows and as was to be expected, the addition of soy flour had an influence on the percentage both of the fat and the protein. The percentage of fat in the mixture is about 1% higher than that in wheat flour which is nearly equal to the surplus of fat that was to be expected.

“In the proteins this numerical difference is not so regular and the reason for this is that the protein of the soy bean is different from that of the cereals or that it contains a different percentage of nitrogen and so it is clear that this difference of some 2%—by taking the generally accepted mean value of the multiplying factor—does not show the real relative value. But if we consider the percentage of nitrogen in the various proteins, this difference—within the limits of the experiment’s—comes very near the theoretical value, a thing that should not surprise us, since the 5% of protein contained, in soy flour could not disappear.

“On the other hand I was not able to make a comparison with the wheat flours used in the baking tests as no samples were sent and the cooking and bread flours which were demanded at a later date were taken from different sacks and different sources.

“The soup puddings and the Tarhonva (dried pastries) prepared from the mixture of soy and wheat flour are pretty and faultless. The chemical composition using 10% of soy flour is as follows:”

Tables show: (4) The percentage of water when prepared without eggs. (5) Calculated on the dry substance [on a dry weight basis], the product contained 2.40% nitrogen, 15.00% crude protein, and 0.035% lecithin-phosphoric acid.

“Hence the ingredients both of fat and of protein—corresponding to the 10% supplement of soy flour show an increase. The percentage of protein-phosphoric acid is also higher than it is in wheat flour and the difference corresponds to that which would exist were a hen’s egg used for 1 kg of flour.

“We have also made a cooking test both with dried maccaroni and tarhonya and hereby experienced that these preparations are in nowise different as compared with the properties of the maccaronis prepared with small quantities of eggs and that they have a good and pleasant flavour.

“For the purpose of a final comparison I offer the following chemical analysis of a sample of flour which I obtained later— but which was not the same flour as the rolls, bread and maccaroni.

A table shows the nutritional composition (on a dry basis) of pastry flour, cooking flour, and bread flour. The crude protein ranges from 11.12% to 15.56%.

“By using soy flour the percentage of protein with regard to the nitrogen nutritive value of the rolls and puddings can be raised at will. In the rolls and the bread, the soy flour does not play the part of ballast as is the case e.g. in maize flour; it does not impede the rising and yields a loose light palatable product. It is in my opinion admirably suited to improve the scarcity of protein in the foodstuffs of today, as the majority of the city population are not able to supply their wants with the exorbitantly high-priced animal albumen.

“Budapest the 15th June 1923,

“Legal guaranty for the correctness of the Copy: Alex Miksa

“Stamp: Executive of the Royal Hungarian Food Ministry.” Address: Manager, Chemical and Food Testing Dep., Budapest, Hungary.


**Summary:** Experiments conducted in Austria with the use of soya bean flour in bread have been successful. The output of this popular bread has increased to 10,000 loaves per day, according to the Department of Commerce.

The first experiment was made three months ago by a
baker in Vienna, introduced a loaf of wheat bread containing 20% soya bean flour. This flour is produced by a “secret process.” “Soya flour is said to be rich in proteins and fats, and its carbo-hydrates possess a sweetening quality which makes it distinctly agreeable.”

Note: This article also appeared under the same title in the Washington Post on 16 July 1923 (p. 6).


• Summary: This is an early non-soy document about Laszlo Berczeller, showing his interest in physiology and red blood cells. Address: Physiological Institute, University of Vienna (Aus dem physiologischen Institut der Universitaet Wien).


• Summary: “No. 3-ig/1924. Budapest 8th Jan. 1924. Your Excellency: With reference to your letter No. 63478 (Foreign Trade) dated the 29th Dec: ult: I have the honour to forward you, in the sequel, my opinion on Ladislaus Berczeller’s process of preparing soy flour.

“The soy flour prepared in accordance with the Dr. Berczeller process is of a pale yellow colour, has a slightly sweet, agreeable almondlike flavour and, in spite of its high percentage of oil, is but slightly fatty.

“The sample submitted to me contains 41.8% of protein and 19.6% of fat. Under the microscope it shows isolated grains of starch. The soy flour prepared by the Berczeller process keeps very well as the soy butter which is apt to turn rancid, in this flour does not go bad. It is owing to this quality that the flour is suitable, for industrial production. This quality of the soy was as yet unknown, as during the war the attempt was made at Hamburg, to bake bread out of soy flour of one milling, but the public were unwilling to use the bread which contained 7% of soy flour.

“The soy flour prepared by the B process however, imparts no unpleasant flavour whatever to the bread even when used in a far greater percentage (15%-18%) and even more. And, owing to the great quantity of fat it contains even a mixture of 3%-5% increases the durable quality of the bread. Thanks to its high percentage of protein and fat, the soy bean is destined to play the part of a first rate article of human food and fodder for cattle, if it should become possible to do away with its unpleasant secondary effects.

“Already during the war, Dr. Lüthje of Hamburg in the comprehensive and expert treatise which he published on the subject of the soy bean, drew attention to the fact that this soy bean cannot even be used as human food like our cereals first of all because it can’t be boiled, i.e. cannot be cooked in the same way, and secondly because, when prepared in the same way as the cereals, its consumption causes evil effects to human beings. It must be remarked in concurrence with Dr. Lüthje, that in those cases where the soy bean has been proposed as an article of human consumption, this has been done either by reason of its common use in the Far East, or exclusively on account of its chemical composition. There is no mention to be found in literature or experiments, having been continued throughout adequate periods of time, which have been performed on human beings with a diet of soy beans. Also at the meeting of the agricultural council for experimental matters (the Ministry of Agriculture) held on the subject of the soy the unanimous opinion was expressed that the soy in the form as yet generally proposed, is uneatable by man and can only be used as fodder in small quantities, as is to be seen from the various written data. On the other hand, that the soy flour prepared by the Berczeller process can supply a great part of man’s demands for protein, and this, too, continually and for a long time. This is proved not only by the tests of Dr. Berczeller but also by the systematic experiments of the Univ. Prof. Dr. Paul Heim.

“Moreover the use of the soy bean in the form of the flour in question promises to the admirably practicable as it can be extensively used in the cooking of various dishes, e.g. as a thickener and in the preparation of bread, puddings, meats (sausages, hachés).

“It is worthy of special mention, that the protein in the soy is one of the few vegetable albumens which are most capable of substituting meat albumens.

“In virtue of all these facts the soy flour prepared by the Berczeller process is destined to take a foremost place as a food for the masses. It has a special value for Hungary in so far as, by reason of its high percentage of fat, it can alleviate the prevailing dearth of fat.

“Since the production of the Soy in Hungary can only be started with any hope of success, when the consumption of the soy is sufficiently extensive, it is advisable to facilitate the extension of the soy consumption.

“It is well known with regard to many articles of food for the masses, how long it takes for them to gain a footing in general use. The general use and the transplanting of the potato into Europe, look nearly three hundred years. It is of paramount interest in the question of hygienics and national economics that the extension of the soy consumption be materialised in the near future, and this can be accomplished chiefly by subsidising the extension of soy consumption by the state.

• Summary: “Since the time when Haberlandt first exhibited the soy bean at the Vienna Exhibition in 1873, many attempts have been made to utilize it as human food. None of these attempts met with success except those in which oil was pressed or otherwise extracted and the residue used as fodder for cattle. Those attempts which aimed at producing flour for human consumption were attended with failure. Although the flour in its chemical composition may be called ideal, it could not till now be used as nourishment for man owing to its insconservability resulting from its high percentage of fat and its unsatisfactory diatetic effects. Neither could the soy flour extracted from the bean be used for human food as, by reason of benz in being used in the process of extraction, highly important nourishing ingredients were wasted; and likewise the treatment with hot steam to extract the benz in was very detrimental to the flour. The soy flour thus extracted is only suitable as fodder for full-grown cattle.

“Dr. Berczeller produces a flour from the soy bean which, while retaining the original quantity of oil is not subject to rancidity. I am ignorant of the details of the process of production, nevertheless I have tested the flour after long storage, have myself eaten of the baked foods and bread made from the said flour, and am able to sum up my judgment by stating that the flour produced by the Berczeller process can be kept for a considerable time without any change whatever and that the bread and baked foods made therefrom are simply excellent.

“For this reason the Berczeller process is of great significance for feeding the masses. The albumen ingredients of the soy rank among the most valuable of vegetable albumen ingredients. Now that success has been attained in retaining the original properties of the soy, a question of the most vital importance in the nourishment of the people has been solved. It is becoming harder day by day for our middle classes to get the albumen necessary for nourishment. It would be a considerable improvement in this direction if bread, pudding, baked foods, soup cubes etc. containing a high percentage of albumen were produced by using the Berczeller process.” Address: King’s Counsellor, Dr., Special Professor at the Veterinary College, Univ. Prof. Director of the Veterinary Institute. Budapest, Hungary.


• Summary: Soy beans are heated and then subjected to saturated steam for 10-12 minutes to remove objectionable constituents.

“The ground material is a light yellow flour and is a highly valuable food on account of the 38 to 42% albumen [protein] it contains. This food is fit for human consumption in various forms, either alone or mixed with starchy matter. Beans treated according to this invention can be made suitable for nutritive purposes also in the non-ground condition, either by soaking or boiling them, or both.

“By way of example, the invention may be carried into practice as follows:

“The beans are first heated in a dry state and then subjected to the action of saturated steam for a short period of time (about 10 to 12 minutes), and are simultaneously agitated, in an iron vessel which is preferably steam-jacketed. The steam is produced in the jacket or supplied thereto from outside and allowed to enter the vessel proper above the beans through a nozzle fitted to the cover. This method almost entirely precludes the condensation of water on the walls or on the beans so that the latter absorb the smallest possible amount of moisture. The beans are now dried for a short period of time to restore firmness thereto and make them suitable for grinding. A suitable method of drying is to subject the hot contents of the vessel to a vacuum, immediately after the end of the steaming operation, so that the moisture is removed within a few minutes. The beans thus recover the firmness necessary for grinding.

“The beans may be treated continuously in a heat-insulating vessel, the beans being dropped from above into the vessel, while the steam is supplied in a continuous current from below. After the apparatus has been working for some time it becomes so hot that the beans which drop down continuously and are uniformly distributed, are heated so rapidly to a high temperature that any condensation of steam on the beans or any absorption of water is reduced to a minimum.

“If the beans are husked before treatment the time of treatment is considerably shortened and the taste of the product is improved.” Address: 1, Déak tér, Budapest V, Hungary, a Hungarian national.


• Summary: For details, see Laszlo Berczeller’s 1924 U.S. Patent 1,509,076; “Treatment of soy beans.” Address:
always associated with Manchuria, and on any extensive scale have failed. ‘Beans’ is therefore Manchuria is “almost the sole supplier of soya beans to result of its stupendous [soya] bean resources.” Manchuria has developed along industrial lines mainly as a its economic progress. From a primitive agricultural region Manchuria has developed along industrial lines mainly as a result of its stupendous [soya] bean resources.”

Manchuria is “almost the sole supplier of soya beans to world markets. All attempts to cultivate beans out of China on any extensive scale have failed. ‘Beans’ is therefore always associated with Manchuria, and vice versa.

There are many soya bean varieties, but the yellow oliferous one (huang-tou) is the dominant variety; it is “subdivided into a number of kinds. The experimental field of the Manchurian Rural Economy Society cultivates no fewer than 200 varieties.”

Chinese official statistics, which are usually low, estimate the area under soya beans in the whole of China [including Manchuria] at 12 million acres. Statistics from the Economic Bureau of the Chinese Eastern Railway, in the C.E.R. zone (Heilungkiang and a part of Kirin province), yellow soya beans are planted over an area of not less than 4.3 to 4.4 million acres, or 25% of the entire cultivated area, while in all 3 of the provinces of Manchuria the Bureau estimates that there are 8 million acres under cultivation. On average in Manchuria, 1 acre yields about ½ ton of soya beans. Thus, the total average production of soya beans in the whole of Manchuria may be estimated at more than 4 million tons, of which about 2.4 million tons (about 60%) are exported in raw and manufactured articles.

Owing to the density of the inner provinces of China, almost all the soya beans there are consumed locally. “Inner China looks not so much to the oil content of the bean as to the azotic stuffs [nitrogen] it contains. The export of soya beans and products from Inner China is very small and decreasing (5.5 million piculs in 1920 and 4.6 million piculs in 1922) while the exports from Manchuria continue to grow dramatically.

The world is now looking to the soya bean as one solution to its future food problems. Dr. Berczeller, a well-known Hungarian scientist, says: “It is a matter of the highest political importance that the West should learn the lesson of cheaper living as taught to them by the East in the adaptation of the soya bean as an article of food.” After prolonged investigation, he claimed to have succeeded in creating from the yellow soya bean bread, milk, and flour, which were both inexpensive and palatable. Yet the taste of many soybean products (such as “bean flour” and “bean cheese”) is unknown to Europeans.

“The extraction of oil from [soya] beans has as ancient an origin as the cultivation of the beans themselves. In the native Chinese mills it is still effected by means of the wedge press, the invention of which dates from the early days of the history of technics. The first steam bean-oil mill was opened toward the end of the last century at Yingkow [Yingkou]. At present such mills are counted in hundreds. Almost the entire bean oil export comes from steam mills. Several years ago the South Manchuria Railway Company erected a mill at Dairen for the extraction of oil with the aid of benzine. It is now under private management.” Using the solvent method, 12% of the weight of the bean is extracted as oil, using the steam mill only 19%, and using the wedges presses less than 10%. Recently, due to perfected methods of refining, an oil named “Azetko, made at Harbin by the Anglo-Chinese Company, has begun to be used in food by Europeans.

Before World War I, the price of soya beans was much lower than today. Today the main consumer of bean cakes is Japan, were they are used as fertilizer on the rice fields. “However, there is one dark side of the picture” of soya beans in northern Manchuria. Manchurian bandits (hunghutse) are terrorizing and plundering the peasants.

Note 1. This is the earliest document seen (Nov. 2012) that uses the term “dark side” in connection with soya beans.

Tables show: (1) Soya bean cultivated area and production in the three provinces of Manchuria in 1923: Kirin province (center east): 1.6 million shan (1 shan = 1.8 acres) produced 1.5 million tons. Heilungkiang province (furthest north): 1.2 million shan produced 1.5 million tons. Fengtien province (later renamed Liaoning, furthest south): 1.2 million shan produced 1.5 million tons. Totals for Manchuria: 4 million shan (7,200,000 acres) and 3,700,000 tons.

Note 2. This is the earliest document seen (March 2001) that gives statistics on soybean production in East Asia. (2) Export of soya beans and soya bean products from China proper. Source: 1922 Chinese Maritime Customs report. For the 3 years 1920, 1921, and 1922, gives the weight in millions of piculs (1 picul = 133.33 lb) and value in Hk. Tls. [Haikwan Taels; a monetary unit] of each of the following: Yellow [soya] beans: Grain [beans / seed], bean cakes, bean oil, total. Black [soya] beans. Green [soya] beans. White [soya] beans. Other kinds. Total exclusive of yellow beans. Gross total. In percentages relative to 1920. (3) Exports from Manchuria only: Exactly the same years and products as Table 2. Note 3. One Haikwan Tael in 1920 equaled 6 shillings 6½ pence or $1.24 in gold coin; in 1922 it equaled 3 shillings 9 pence or $0.83 in gold coin.

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Although we know the amount of soybeans imported to the area imported from China 0.4 million piculs of soybeans, treated as one unit or geographical area. In 1920 this amount was about 2.5 million piculs to Holland Indies, To Turkey, Persia, Egypt, etc. To Europe. To Japan, To other countries. Via Vladivostok. Total. Note 4. Soybeans exported via Vladivostok are mostly directed to Europe (about 3 million piculs), with about 2.5 million piculs to Japan.

Note 5. In Table 5, “Turkey, Persia, Egypt, etc.” is treated as one unit or geographical area. In 1920 this area imported from China 0.4 million piculs of soybeans, followed by 0.7 million in 1921 and 0.3 million in 1922. Although we know the amount of soybeans imported to the area, we cannot say for sure to which specific countries the soybeans were imported in this area (Turkey and/or Persia). Therefore, this may be the earliest document seen (Dec. 2007) concerning soybeans in Turkey. This document may contain the earliest date seen for soybeans in Turkey (1920-1922).

Note 6. This may be the earliest document seen (Dec. 2007) concerning soybeans in Persia (today’s Iran). This document may contain the earliest date seen for soybeans in Persia (1920-1922).

Note 7. This is the earliest document seen (Dec. 2007) concerning soybeans in the Middle East / Near East (Persia, and/or Turkey—today’s Iran). This document contains the earliest date seen for soybeans in the Middle East / Near East (Persia and Turkey) (1920-1922).

(5) Net export of yellow soya beans from China in millions of piculs each year from 1920 to 1922: To Japan, To Dutch Indies, To Turkey, Persia, Egypt, etc. To Europe. To other countries. Via Vladivostok. Total. Note 4. Soybeans exported via Vladivostok are mostly directed to Europe (about 3 million piculs), with about 2.5 million piculs to Japan.

(6) Net export of [soya] bean cakes from China in millions of piculs each year from 1920 to 1922: To Japan, To other countries, Via Vladivostok. Total. “Bean cakes exported via Vladivostok are directed almost exclusively to Japan.”

(7) Net export of [soya] bean oil from China in thousands of piculs each year from 1920 to 1922: To Japan, To Dutch Indies, To Turkey, Persia, Egypt, etc. To Europe. To United States of America. To other countries. Via Vladivostok. Total. A note states that Bean oil exported via Vladivostok is mostly directed to Europe and to countries of Asia Minor. All the other kinds of beans are distributed mostly in Japan, Korea, and along the coasts and islands of the Pacific Ocean.

(8) Chemical composition [as-is basis] of the three main soya bean varieties cultivated in North Manchuria: White Eyebrow (pai mei). Round Gold (chin-yuan). Dark Belly (hei chi). (9) Weight (in millions of pounds) of soya beans and products carried on the Chinese Eastern Railway in 1920, 1921, 1922, and 1923. Also: Percentage of total carried. Weight of each exported to the South Manchurian Railway, and to the Ussuri Railway. Soya beans and their products are the principal cargo of the Chinese Eastern Railway; in 1923 they accounted for 49.0% of its total cargo, compared with only 24.6% in 1920.

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• Summary: “To all whom it may concern: Be it known that I, Laszlo Berczeller, chemist, a subject of the Hungarian Kingdom, residing at Budapest, Hungary, have invented certain new and useful Improvements in the Treatment of Soy Beans, of which the following is a specification.

“My invention relates to a process for purifying soy beans which in their natural state are very evil-tasting. To this end, and according to the invention, the beans are subjected to the action of steam (preferably saturated steam) for a short period of time, so that they absorb only a very small quantity of water, for the purpose of preventing albuminous matter from being affected thereby.”

“By way of example, the invention may be carried into practice as follows: The beans are subjected to the action of saturated steam for a short period of time (about 10 to 12 minutes), and are simultaneously agitated, in an iron vessel which is preferably steam-jacketed or at least heat insulated. The steam is produced in the jacket or supplied thereto from outside and allowed to enter the vessel proper above the beans through a nozzle fitted to the cover. This arrangement almost entirely precludes the condensation of water on the walls or on the beans so that the latter absorb the smallest possible amount of moisture. A substantially similar result (though not quite so satisfactory) may be obtained by heating the vessel to just over 100ºC., the temperature of the steam flowing into the vessel for a short time being 100ºC. The steaming is completed when steam issues from the outlet on the lower face of the vessel at the rate at which it enters the latter above the beans. These are now dried for a short period of time to restore firmness thereto and make them suitable for grinding. The beans may be deprived of the slight amount of absorbed moisture in any suitable way. An advantageous method of doing this however, is to subject the hot contents of the vessel to a vacuum, immediately after the end of the steaming operation, so that the moisture is removed within a few minutes. The beans have now recovered the firmness which makes them suitable for grinding.

“The steamed and dried beans can be most easily husked and the absence of husk considerably reduces their proportion of cellulose. The taste of steamed and huskless beans is better than that of beans with their husk. The purification or improvement of soy beans according to the invention is remarkably increased by steam-treating them as described after the husk is removed. The time of treatment is thus considerably shortened and the improvement as regards taste is still greater. Moreover, flour lighter in colour is produced from dry beans treated according to this preferred method of carrying out the present process.”

Bailey, Capen and LeClerc (1935, p. 446) say of this pioneering patent: “The first successful attempt to prepare...
a soybean flour which would be free from the disagreeable beany taste, which would remain fresh almost indefinitely (that is, not develop rancidity), and which would retain, practically unchanged, the original composition of the bean is described in the Berczeller patent (1924). This process consists of subjecting the cleaned soybeans to the action of saturated steam for 10 to 15 minutes. The beans are then dried, cracked in order to remove the hulls, and ground into flour. Such flour has a sweet, pleasant, nut-like taste (a characteristic of most flours obtained from soybeans which have been subjected to a special beany-taste removing treatment), and may be kept for many months without spoilage due to the development of rancidity.”

Note: This is L. Berczeller’s only U.S. patent. Address: Chemist, Budapest, Hungary, a subject of the Hungarian King.


• Summary: For details, see Laszlo Berczeller’s 1924 U.S. Patent 1,509,076; “Treatment of soy beans.”

Note: Soy is mentioned 6 times in this patent in the forms “Sojabohnen” (soybeans) and “Sojabohne” (soybean). Address: 1. PhD, Budapest [Hungary]; 2. Cupar-Fife, Haymount, Schottl [Scotland].


• Summary: “My invention relates to a process for purifying soya beans which in their natural state are very evil-tasting. To this end, and according to the invention, the beans are subjected to the action of steam (preferably saturated steam) for a short period of time, so that they absorb only a very small quantity of water, for the purpose of preventing albuminous matter from being affected thereby. The whole of the bean is almost entirely transformed by this short steam treatment. The nauseous flavour vanishes, and experiments on animals have shown that beans thus treated are perfectly innocuous whilst aqueous extracts of raw soya beans have a poisonous effect.” Address: PhD, Vienna.

34. Southern District, Central Division, Los Angeles, California, District Court. 1925. Petition for Naturalization by Solange Berczeller. Nov. 28. 1 p.


• Summary: This lecture was presented to the highest Economic Advisory Council in Moscow (Vortrag gehalten vor dem Professorenkollegium des obersten Wirtschaftsrates, Moskau). Berczeller (1929, twice) gives the date of this lecture as 1925, and says it was presented to the Professoren-Kollegium des Obersten Wirtschaftsrates.

We have been unable to find the text of the actual lecture (in any language).

36. Laszlo Berczeller’s bookplate (Ex Libris Dr. Berczeller László). 1925?

• **Summary:** In 1870 a large migration of Chinese into Manchuria began, and from this time the soybean started to become the main crop of Manchuria, which is today the most important place for growing soybeans in the world.

The soybean became known in Europe largely through the efforts of Prof. Haberlandt following the Vienna World Exposition of 1873. Large agronomic trials were undertaken, not only in Austria-Hungary but also in Russia. Trials were conducted successfully in most areas where corn/maize thrives. Nevertheless, the crop did not expand, since there were no suitable conditions for the utilization of soya or even market opportunities for the new crop. But with the development of improved extraction processes for obtaining vegetable oils, since 1908 the soybean has become widely used in Europe (and especially in England) as an oilseed, and imports have grown very rapidly. This growth was so sudden that in the trade report of Gehe & Co. for 1911 it was described as “something that has happened only once in the history of world trade. The imports of this heretofore neglected commodity rose to fabulous heights, and in a very short time it conquered the world market.”

The author then discusses the nutritional composition of the soybean and briefly reviews the history of research on its nutritional value, including the work of Osborne and Mendel—which was confirmed by L. Berczeller. The high biological value of soya protein is also shown by the fact that in East Asia, soya largely replaces animal protein in human diets. The use of the soybean for human nutrition depends (despite its outstanding chemical composition) on how it its technically processed. For centuries, ongoing experiments have been conducted on how best to make soybeans into tasty, nutritious foods. The soybean was used as a vegetable, made into milk, subjected to fermentation processes, used to make a type of cheese [tofu], and even a coffee substitute. Above all, people tried to mill it into a flour or to cook it like European legumes, and these recommendations were repeated uncritically in book after book until the advent of World War I, when they were examined on a large scale over a long time. In 1915 Lüthje [Luethje] wrote that the soybean could not be cooked and used like typical European legumes. People who tried to make soy flour during the war found that, because of the oil in the soybean, the flour quickly became rancid, causing consumers to complain about its bitter taste. So processors tried to make soy flour from defatted soybeans, but this caused a loss in nutritional value. However L. Berczeller, using a process of fractional distillation, succeeded in making whole soy flour which, despite its high fat content, did not become rancid. On a dry-weight basis this soy flour contains 45.50% crude protein and 2.38% fat. A table (p. 1213) shows that it is a less expensive source of calories than any other food. Using prices from June 1926 1,000 calories from whole soy flour cost only 0.19 shillings compared with 0.78 shillings for milk, 0.80 for butter, 1.07 for pork, 1.75 for an egg, and 2.64 for lean beef. The great practical significance of this lies in the use of soy flour in bread in place of all or part of the milk, eggs, and fat.

Through the use of soya flour it is therefore possible, even for people with a low income, to secure a similar consumption of protein and fat, as is otherwise accessible to only a very small part of the population. Soya makes this possible in East Asia already today for hundreds of millions of people. Address: Physiologischen Institut der Wiener Universtaet (Vienna), Austria.


• **Summary:** “Vienna, October 13. Several years ago the Austrian professor, Haberlandt, advocated the culture of the Soy bean, which is so largely used in China. The cultivation was successful, but the Soy was found unsuited to European taste, despite its high food value.

“Now Dr. L. Berczeller, of the Vienna Physiological Institute, is reported to have produced a flour from the Soy which has an immense value as a foodstuff, and contains the only plant albumen [protein] which is equal in value to the expensive animal albumen. Through adding five per cent. of Soy to bread, the food value is increased considerably. Soy bread is said to be much more attractive than ordinary bread, and remains “new” [fresh] much longer.

“It is calculated that by using Soy flour Austria might save five and a half million pounds a year.” Address: Vienna, Austria.


• **Summary:** Discusses the food value of soy flour and its importance to Italy. Address: Roma Societa Anonima Tipografica Luzzatti.


• **Summary:** Soy is not mentioned. Address: Physiological Inst., Univ. of Vienna.

Great quantities to Japan and also to Europe. In Austria, the scale and forms a favourite article of export which goes in cultivation of the soy bean has been carried on, on a large centuries in China and Japan. Since the year 1870 the production of food oils or food fats from the soy beans were first recommended as an article of food by Haberlandt at the Vienna Exhibition in 1873. Whereas in their native land they enjoyed universal favour as a food, neither the soy beans, nor any of the preparations made from them could gain a footing with us, with exception of the soy spices which was [sic, were] manufactured wholesale in the factories and were looked upon more as a luxury than an article of food. With us the soy beans have only found a use in the production of oil by pressing the beans, and this for various industrial purposes. No written records exist of the production of food oils or food fats from the soy beans. The residue in the press has been turned to valuable account as a fattening fodder just as is the case with the sunflower cakes, the poppy press cakes and the cottonseed cakes. Whether the warning against feeding such residues to cattle is justified, and whether such feeding with the soy cakes is more liable to impair the health of the cattle than is the case with the feeding with other fat and albuminous residues is, to say the least, very questionable and must first be proved by experiment. According to the great majority of the available reports, it would appear that the soy can safely and advantageously be fed as a supplementary fattening fodder. As a direct human food it seems that, even in its native home, neither the soy bean nor the soy flour, made from it, is used, while the spices prepared from the soy find an extensive use especially in Japan where it is eaten with almost every dish. König asserts that in all probability every Japanese eats on an average 100 gr. of soy spices a day, so that the 9% of albumen contained in these spices counts as a considerable addition to his ration of albumen. The flavour of the soy spice is attained by injecting mildew fungus into the half-boiled beans and leaving them in a damp condition at a temperature of 20º to 25ºC. and letting them ferment for months and even years, and it is only then that the savoury soy value is attained which is a current article of food for the masses, and is never wanting in the Japanese home.

“Suchlike soy preparations cannot be introduced here probably owing to the different taste of the European, but also the attempt to introduce the soy in a different form as a food for our population has as yet met with total failure. Especially during the war attempts were made to market the soy bean as a highly nutritive and cheap article of food. These attempts failed and were bound to fail. It is impossible to render the soy bean edible by the simple process of boiling as is the case with other cereals. Not even after 5 or 6 hours’ boiling and even by adding cooking [baking] soda, does the soy bean become soft enough to eat. This is why Lüthje [Luethje] in Hamburg [Germany] ended by summarily refusing to accept it according to his report, in addition to the bad experiences made with the soy bean from a technical cookery point of view, unfavorable consequences followed in so far as many persons after eating soy beans complained of the difficulty in assimilating them, deranged digestion, nay, perhaps even of certain symptoms which were put down to intoxication.

“No doubt there are many people with whom the boiled soy bean as food did not agree, and it is certain that justified complaints arose about the injuries to health caused by eating the unsuitably cooked soy bean—especially when eaten together with the other war diet. Personal experience goes to prove this. But whether it is definite substances and which of these substances it is that is responsible for the detrimental effects on health is a question which in spite of Dr. Lüthje’s assumption that it may be the betain the harz [sic], the slime and the cholin, cannot be said to be proved. That this unfitness is not to be attributed exclusively to the difficulty of cooking the soy bean, a difficulty which itself arises from the absence of starch which is so necessary for the process of ebullition, is proved by the fact that the usual millings of the soy bean (hence soy flour) yield a flour which is inedible and incapable of being kept. Likewise the attempt to improve the edibility and to combat the tendency to rancidity in the fat of the soy flour by heating or by a treatment with steam or by roasting has not succeeded. Many years ago a sample of soy flour from the Vienna workmen’s Bakery which had evidently been treated in this manner, was submitted to me and proved to be useless and even injurious to health. All the different drastic processes with which till now attempts have been made to render the soy flour edible and preservable have, to the best of my knowledge, met with failure. Either the biological value of the flour is impaired or still more fat has been added thus increasing the tendency to rancidity, or the flour must be extracted in order separate the fat from the milling by means of benzin and then attempts must be made to rid the flour of benzin by means of steam so that, in the end, in spite of all the work and the great expense involved in the process, there results nothing but a badly damaged article of food of inferior nutritive quality and physiological nourishing power, which, without doubt in the course of time, will turn out to be injurious to health.

“Now Dr. Berczeller has really succeeded in discovering a process which enables these difficulties in the way of exploiting the soy as a food for the masses to be overcome. The samples of flour which were submitted to me were faultless as regards taste, in the production of rolls and pastries a mixture of 10% to 15% of soy flour with wheat flour has clearly proved a complete success as the permanent tests carried out on adults and children have shown that foods prepared with this supplement of soy flour can not only be kept for months without suffering any detriment.

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but can also be eaten without any distaste [from the] soy flour produced by this process, which lay for two years in the laboratory of our institute has kept unchanged without turning rancid.”

“Thus it appears to be a fact that the Berczeller process has succeeded in finding a simple way of producing a soy flour which fulfils all the demands of the technicalities of the food question and makes it possible to introduce soy flour in large quantities into the food for the masses. The significance of this fact becomes apparent when it is considered that, as regards albumen, the soy bean counts among the richest of the albumen suppliers, contains albumen in a biologically undiluted form and is capable of substituting for animal albumen, moreover that the nutritive value of the soy bean and the soy flour—on account of their high percentage of fat—is far greater than that of ordinary flour and lastly that in the preparation of pastry the soy flour is fully capable of substituting milk and eggs thus aiding considerably to diminish the price. As has been shown by numerous cooking tests, the soy can also be used to advantage as a rich basic in making sausages, food pastes and cheese and in baking rolls of all descriptions and it is possible, by replacing a part of the flour with soy, to raise the nutritive value of the food both in its caloric worth and in its percentage of albumen.

According to the present market prices the soy, calculated in the money value of calories, is also to be counted among the cheapest foods since there is no albumen supplier known that which can give us an equivalent quantity of albumen for the same price and also because today the soy calorie is cheaper to buy than the flour calorie. We must not, of course, forget that we have to reckon with different qualities of soy so that the price is to be calculated according to the sort of soy bean from which the flour is obtained; it is likewise also to be expected that soy price will most likely rise considerably when the bean is supplied in large quantities to the mill and the flour forwarded for human consumption.

“It is to be remarked that after experimental exploitation well prepared soy flour of about 10%, i.e. just as good as, let us say, good quality meat, will be used and thus this soy flour will be employed to advantage, both as a first-class, rich and appetising albuminous food, as a supplier of calories or as a technical substitute in the baking of fancy breads and cakes, and in the kitchen of the home. The high nutritive and albuminous value of the soy may be seen from the following figures:

“Soy beans contain 13%-21% of fat, 29%-45% nitrogenous substances (crude albumen), 22.6%-32% extracts free from nitrogen—chiefly about 33% albumen, 16% fat and 28% N. fr. [Nitrogen free] extracts.”

The percentage of albumen in soy flour is about 4 times as much as that of [wheat] flour, and the caloric nutritive value is about 20% higher than that of flour.

“One has but to think of what a boon it would mean of we were in a position—and this could easily be done by the

soy—to reduce the consumption of meat and sausages only 1/5 of its present amount... The social political significance of this question is beyond all doubt.” Address: Chairman, Physiological Institute, University of Vienna, Austria.

42. Berczeller, L. 1926. Die Bedeutung der Soja fuer die Volksnahrung [The significance of soya for the nourishment of the people]. Therapia (Budapest). [Hun; Ger]


   Note: Only one library in the USA has the 1926 and 1927 issues of this magazine—New York Academy of Medicine, Center for the History of Medicine and Public Health. On 23 July 2014 Johanna Goldberg, MSLIS and reference librarian there, looked through the author directory for 1927 and the tables of contents for the issues in their collection from 1926 (they do not have the full run for that year, unfortunately; missing issues 5, 9-12). All of the journal contents is in Hungarian. She did not find Berczeller’s name.


• Summary: “A striking example of the introduction and utilization of new crops may be seen in the case of the soy bean. Until recent years, beans and bean products have not occupied a place of importance in commerce, although they have been used as an article of food by the Chinese for centuries past. It is chiefly due to experiments of the Japanese that the value of the by-products has been established... Modern Manchuria may be said to have been built on the soy bean.” Discusses the merits of soy flour, and the work on its behalf of Dr. A.A. Horvath of the Peking Union Medical College, and by Dr. L. Berczeller, the Hungarian food physiologist. Address: Secretary, China International Famine Relief Commission.


• Summary: On page 98 is a letter to the London Observer (17 Oct. 1926) titled “Soy flour in bread” about the work of Dr. L. Berczeller of the Vienna Physiological Institute.

   Chapter 13, “The soya bean” (p. 99-107) begins: “This book would be incomplete without a reference to the Soya (or Soy) Bean—one of the most valuable legumes in the world.” It discusses. Long use of the soya bean in China by the native races. Introduction into Europe at the end of

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kinds of fragrant dry curd (It is sometimes fried in oil, or used in omelettes, etc. Various becomes much cheese, but when subjected to pressure and allowed to dry it the Christian Era, and introduced into Japan from China by Wha Nain Tze [Huai Nan Tzu; Liu An of Huai Nan] before is said to have been originated by the Chinese philosopher Teou fu curd is produced. This cheese is called "One form of soya bean curd is called Tofu. Vegetable milk. Tofu. Suggestions for introducing soya beans to Europeans and Americans.

Page 100 states: “Many authorities claim that the soy bean will soon become one of the great foods of the civilized world. It contains a large amount of protein of very fine quality–as valuable as the casein of milk. The soy bean, indeed, takes the place of meat and milk in the diet of many millions of people in different parts of the world.”

Page 104-06: “Vegetable milk may be used in the same way as cow’s milk. In China this milk is drunk by the Chinese in the early morning, with sugar added; it is also eaten as a thin broth with salted pickles. Throughout China, vegetable milk is extensively used for infant feeding [sic], and it is bottled and delivered each day to regular customers.

“Investigations in America and Europe indicate that vegetable milk can be successfully used to replace cow’s milk in numerous preparations—e.g., in bread, cakes, creamed vegetables, custards, chocolate, and cocoa. It has been used to check the spread of summer diarrhoea and other intestinal disturbances among babies. It was found that the milk was easily digested and easily excreted.

“One form of soya bean curd is called Tofu. When a mineral salt or acid is added to soya bean milk, coagulation is produced, similar to the coagulation produced in animal milk by the same means. If the precipitated mass is allowed to drain, and is subsequently washed, a kind of white cheese or curd is produced. This cheese is called Tofu by the Japanese, Teou fu by the Chinese, and Dan Phu by the Annamites. It is said to have been originated by the Chinese philosopher Wha Nain Tze [Huai Nan Tzu; Liu An of Huai Nan] before the Christian Era, and introduced into Japan from China by the Buddhists. Ordinarily it has the consistency of cream cheese, but when subjected to pressure and allowed to dry it becomes much firmer, and can be rolled and cut into pieces. It is sometimes fried in oil, or used in omelettes, etc. Various kinds of fragrant dry curd (Hsiang Khan) are used sliced in soups and with vegetable dishes. Smoked curd, which keeps very well, is prepared by cooking the curd in soya sauce diluted with about 80 per cent. of water, and then smoking it in the same way as meat is smoked.***

(Footnote: **For fullest details of Soya Bean, see The Soybean by Piper and Morse (of United States Agricultural Department)).” Address: [England].


* Summary: Contents: Introduction. Source and properties of the bean. Its employment as food. Relative cost. Conclusion. A large-scale investigation of the possibilities of the soybean as an article of diet is suggested. Prof. Parsons shows that a new phase in soy bean utilization has been entered, owing to a discovery by Dr. Laszlo Berczeller in Vienna, showing that the undesirable constituents of the soy bean can be removed by special milling and fractional distillation without interfering with the high nutritional value of the resulting meal [flour]. Prof. Parsons bases on these facts a well-considered appeal for an investigation on a large scale, hazarding the opinion that Haberlandt’s prescience may yet be realised and the soy bean come to be extensively utilised in the diet of the masses to supply the proteins and fats needed in supplement of the abundant carbonyl which they obtain from the potato. His facts and figures should certainly receive the attention of all who are interested in the feeding of men or animals.

Tables show: (1) Percentage composition of Berczeller’s dried milled flour. (2) Cost of manufacturing this flour in the UK, where one ton of soy beans at Hulls costs £11 2 s. 6d. The retail price per ton of the flour is estimated to be £20 4s 1/4d. (3) Cost per 1000 calories from various foods. Soya flour, at just less than 1/4d is the least expensive. (4) Cost of 30 gm of protein from various foods. Soya flour, at about 1/4d is the least expensive. Address: Asst. Prof. for Medical Research, The McGill Univ. Clinic, Royal Victoria Hospital, Montreal, Canada.


* Summary: The soy flour contains 6.83% moisture, 41.72% protein (N x 6.25), 20.04% fat, and 4.96% ash.

Note: An English translation of this analysis is found in “Expert Opinions on the Berczeller Soy Flour” (unnumbered page). The analysis was conducted by Dr. Ernst Kupelwieser (of Vienna) at the State Testing Office for Foodstuffs at Graz. The sample arrived on 18 Jan. 1927. Address: Vienna, Austria.

**Summary:** It contains 44.8% albumen and 22.1% fat on a dry weight basis.

Note: An English translation of this analysis is found in “Expert Opinions on the Berczeller Soy Flour” (unnumbered page). The analysis was conducted by Dr. Helene Wastl (of Vienna) at the General Federal Office for the Testing of Foodstuffs at Innsbruck. The sample arrived on 10 Dec. 1926. It was described as: “Yellowish white fine flour, odourless, of a slightly sweet agreeable taste.” Address: Vienna.


**Summary:** A large 6-column table shows the nutritional composition of various common foods: Potatoes, the composition of various common foods: Potatoes, the pea flour (Bohnenmehl), pea flour (Erbsenmehl), long-lasting soy flour (haltbares Sojamehl), lean beef, hens’ eggs, whole cow’s milk. For each food is given: Water, protein, fat, carbohydrates, and calories per kg. The soy flour contains 9% water, 41% protein (highest of all), 20% fat (vegetable oil, highest of all), 24% carbohydrates, and 4,700 cal/kg (highest of all).


**Summary:** Contents: Soybean cake, soybean meal, and soybean flour for food: Soybean press cake, soybean extraction meal, soybean flour (Berczeller, Soyama, Aguma, Ehrhorn), Sojawurze (Suppenwurze, Maggi cubes), digestibility of soybean flour, value for infants, some medical aspects of the use of soybean flour, soybean flour in diabetes (incl. Sarton).

Concerning soybean extraction meal (p. 177-79): This meal is shipped in bags and traces of benzine are easily removed. The process used at the Suzuki extraction plant in Dairen (the only extraction plant in Manchuria) is described; the solvent is benzine. “A new extraction plant (at the Borodin-Takata Alcohol Factory) is now under construction at Imienpo, in North Manchuria. By the new process, beans are first pulverized, then operated upon with alcohol, for the extraction of the oil content... The owner claims that ‘there is no foreign taste left which would make the oil or the bean cakes unsuitable for human food.’” Analyses conducted at the S.M.R. Co. Central Laboratory, Dairen, show that this “bean meal” contains: water 7.90%, protein 57.04%, oil 3.41%, carbohydrates 16.92%, coarse fibre 8.63%, and ash 6.69%.

“The solvent method of extraction, involving the use of benzine or gasoline, is used by many of the large oil mills in European countries, especially England.” Mills in the USA do not yet use the solvent method; they use traditional hydraulic and expeller processes. “The new process used by the Hansa Mill at Hamburg (Germany) called the Bollmann process, is so economical that the profits of bean milling can be enormously increased. By this process the beans are first pressed and then extracted. The extracted meal is utilized for the manufacture of a highly valuable soybean flour for food (Footnote: But extracted soybean meal (flour) does not contain any fat soluble vitamin, as shown by Hornemann [1925]). The oil is submitted to refining, during which crude lecithin is extracted. It is purified and sold in a form of pure lecithin.

(Footnote: “The soybean contains 1.64 per cent lecithin (an organic phosphorus compound), the price of which in China is about $18.00 (Mex.) per pound. It shows that the value of the lecithin contained in soybeans is greater than the market price of the beans themselves. Extracted soybean meal is therefore deprived of lecithin, which is a highly valuable food constituent, especially for the nervous system. Ordinary beans (navy beans, etc.) contain only 0.81 per cent lecithin” (p. 178).

Note 2. This is the earliest English-language document seen (March 2016) that contains the term “crude lecithin.”

Page 182 states: “Soybean flour is also utilized in the manufacture of breakfast foods and can be used in the preparation of vegetable milk and bean curd.”

**Note 3.** In the United States some very good breakfast foods and an excellent finely powdered soybean milk powder “Soy Lac” is made by J.A. Chard, Soy Products, 263 W. 12th St., New York City, who has been experimenting for some time with soybeans.)

Note 3. This Soy Lac appears to be the first commercial soymilk made in America.

Berczeller (p. 183-84): “A few years ago the Hungarian food physiologist, Prof. L. Berczeller, elaborated a process for manufacturing a soybean flour containing a large percentage of fat. This does not become bitter if kept for over a year, and has a very pleasant taste. The process is patented in nearly all the countries of the world. Its chemical composition is given in the above table and its food value in a previous chapter. This flour contains the expensive fat-soluble vitamin which is deficient in the food of the white race. It is of yellow colour, has a sweet, agreeable nutty taste, and does not produce obesity, notwithstanding the fact that it contains a high percentage of fat. According to Berczeller, the uses of this soybean flour “O” are as follows:

1. As roasted flour, with an equal part of wheat flour for soups or vegetables;
2. For pastry, 10-15 per cent soybean flour is mixed with wheat flour. In this case no eggs or only a few need
be added. The soybean flour gives to the dough a beautiful yellow colour;

“3. As an addition to meat, 25-50 per cent of soybean flour can be mixed with chopped meat for meat balls, sausage stuffing, etc.

“4. All sorts of flour dishes can be baked with the addition of soybean flour. The taste of the dishes thus prepared becomes better and the nutritive value higher (besides the economy in butter, eggs and sugar);

“5. The addition of even 5 per cent soybean flour in making wheat bread causes a much longer keeping capacity of the bread in a fresh state, the fat preventing the bread from getting stale;

“6. The soybean flour can be used also on a large scale in the foodstuff industry, and in different ways: e.g., in the manufacture of paste products (as a substitute for eggs), cakes, biscuit products, milk-bread (10-16 per cent soybean flour instead of milk), sausages and pastry products (as a substitute for meat).

Berczeller’s soybean flours can be manufactured with little trouble in rice mills or pea mills, where they are decorticated. Eighty-five per cent of soybean flour can be recovered from soybeans. The residue forms a valuable food for animals. According to Berczeller, the cost of production of soybean flour in a European country is as follows:


According to Berczeller, soybean flour is an ideal concentrated food for soldiers, sailors, tourists, etc., in the form of biscuits, etc., because it furnishes a substitute for animal foodstuffs which spoil easily. Berczeller points out that soybean flour is not a substitute for wheat flour but a natural vegetable complement to wheat flour, and one which can be substituted for expensive animal foodstuffs for lowering the living rates [cost of living] of humanity to a degree that could not be reached either by potatoes, maize, or by intensive farming. Austria and Hungary are planning to start a very intensive utilization of Berczeller’s soybean flour. This flour, being cheap and easy to manufacture in native rice mills, may be of great importance to China.”

Note 1. This is earliest document seen (March 2007) concerning the cultivation of soybeans in Ireland (probably). Address: [University College, Cork, Ireland].

• Summary: “The economic crisis which has occurred in the various countries of Europe has been met by numerous methods of saving... From this point of view it is interesting and important to make a close study of the flour of soya bean, both from biological and national economic standpoint.” The authors then give a detailed analysis of, followed by praise for, the whole (full-fat) soy flour developed by Berczeller of the Institute of Physiology, Vienna. They discuss its nutritional value, many uses, and price (which on a per-calorie basis is 2/3 the price of ordinary flour). Noting that “The cultivation of soya is possible in every country where maize grows,” they conclude: “It is our intention to make a trial in growing the bean on a small scale this year and to get the flour milled in Ireland. We intend further to bring the project to the notice of the Minister of Agriculture, as we believe that intensive growth of the bean and manufacture of the flour would be an invaluable asset and an enormous advantage to the country in general.”

Note 1. The second author’s name is misspelled; it should be John Freud. Note 2. This is the earliest document seen (March 2007) concerning the cultivation of soybeans in Ireland (probably). Address: [University College, Cork, Ireland].

• Summary: Discusses the food value and low cost of Berczeller’s soy flour. Address: Dr., Privatdozent fuer Physiologie, Univ. of Vienna, Austria.

• Summary: “A recent issue of the Lancet calls attention to the special nutritional value of the soy bean...

“Now, however, a new phase in the use of the soy bean has been entered upon, owing to the discovery of Doctor Berczeller of Vienna [Austria] that the obnoxious constituents can be eliminated by a special milling process and fractional distillation, without interfering with the high
nutritional value of the meal [flour]. This nutritional value is so great that Professor Haberlandt, years ago, prophesized that the carbohydrate stores of the potato would come to be supplemented, at least in the diet of the poorer classes, by the proteins and fats provided in such abundance in the soy bean.

“The proteins of the soy bean are, according to McCollum, distinctly more valuable from the point of view of nutrition than are those of the other legumes.”


• Summary: A very original and important book. Contents: Preface by Macey F. Deming, Tappan New York, from an address at a meeting of the National Soybean Growers’, held at Washington, DC, Sept. 1925. Introduction. 1. General ingredients of the various Manchurian beans. 2. Composition of some Japanese soybeans and of the common American varieties. 3. Value of the soybean as food. 4. Soybean oil for food. 5. Refined soybean oil: As substitute for salad or frying oil, as substitute for hardened oil and lard (hydrogenation), in oleomargarine and vegetable butters. 6. Whole soybean as food: Immature or green soybeans, mature or dry soybeans, the digestibility of the boiled soybean seeds, boiled soybeans as a food of predominant importance in China, soybean coffee, soybean chocolate, soybean sprouts. 7. Soybean cake, soybean meal and soybean flour for food: Soybean press cake, soybean extraction meal, soybean flour (Berczeller, Soyama, Aguma, lecithin, Ehrhorn), Sojawurze (Suppen wurze, Maggi cubes), digestibility of soybean flour, value for infants (p. 53, based on the research of Dr. Ruhrah in the USA), some medical aspects of the use of soybean flour, soybean flour in diabetes. 8. Soybean milk for food: Introduction, preparation of soybean milk, properties (incl. inoculation with a culture of yoghurt [yogurt] bacteria to give a curd-like acid mass), market prices, composition, nutritive value, new methods in the manufacture of soybean milk (Prof. Laxa in Prague [Czechoslovakia], Li Yu-ying, Soyama), some dietetical advantages and applications of the soybean milk, condensed soybean milk and milk powder (Soy Lac soybean milk powder made in America by Chard), soybean cake, soybean meal and soybean flour as material for soybean milk, yu p’i and yu ba (yuba; also fu chu). 9. Soybean curd (tofu) for food: Preparation and types (classical name is li chi), historical, present state (of tofu in China), chemical composition, digestibility, utilization. 10. Fermented soybean products for food. Soy sauce: Kibiki and sobiki tamari, composition of various soy sauces. Natto. Miso. Conclusion. Bibliography.

On page 9 we read: “An industry which promises to be of importance in a further utilization of the soy bean is the manufacture of ‘vegetable milk.’ At the present time a factory in New York State is being equipped for this purpose.” Address: Peking Union Medical College, China.


• Summary: Importance and food value of soy flour.


• Summary: Partial Contents: Part II. Describes the composition of soybean seed and flour and the characteristics of bread made from it; Part IV. Describes experiments in nutrition; Part VI. Takes up the Berczeller soy flour and its composition and results in feeding it to human beings.

57. Therapie or Therapia (Budapest, Hungary). 1927. [The significance of soy flour for feeding the people]. Aug. [Hun]*

• Summary: In Hungary, the League for the Protection of Children has taken a hand in the distribution of soya flour to children’s Homes, sanatoria, etc. A better recommendation can hardly be imagined.


• Summary: This patent is an addition to Austrian patent no. 106,346 of 20 Jan. 1921. Address: PhD, Vienna, Austria.


• Summary: A maximum of 10% soy flour can be used.

The percentage composition of wholemeal flour from the seeds of yellow Soja hispida and that of the flour obtained from seeds extracted with light petroleum (in parentheses) were: Moisture 10.40 (10.80); protein (nitrogen x 6) 37.98 (47.34); cellulose 5.05 (5.35); fat 18.32 (0.37); non-nitrogenous extractives 23.82 (30.16); ash 4.42 (5.98).

Loaves were prepared from mixtures of 75% wheat flour or the 82% flour now compulsory in Italy with one fourth or one ninth of its weight of soy flour, from which the unpleasant flavoring materials were first removed. The bread
proved heavy and unappetizing, and, even with the smaller proportion of soy flour, not readily tolerated in cases of weak digestive powers. Address: Italy.

60. **Product Name:** [Berczeller’s Soybean Flour].  
**Manufacturer’s Name:** Berczeller (L.) Co.?  
**Manufacturer’s Address:** Deak-tes 1, Budapest V, Hungary.  
**Date of Introduction:** 1927.  
**New Product–Documentation:** Horvath. 1927. The Soybean as Human Food. p. 46. Berczeller’s whole (full-fat) soy flour contains 45.5% protein, 22.4% fat, and 4.8% ash.

Note: This is the earliest known commercial soy product made in Hungary.

61. Budai, K. 1927. [Soy flour from the standpoint of bakery technology]. *Ungarische? Muehlenzeitung* 8-. [Hun; Ger]*


63. Horvath, A.A. 1927. The soybean for food and feed. The Manchurian Research Society. *  
• **Summary:** 1926 articles on soyfoods published in Chinese Bureau of Economic Information.

• **Summary:** The dates of the works in this chronological bibliography go from 1911 to 1926. Address: Vienna, Austria.

Address: PhD, Vienna, Austria.

• **Summary:** Contains recipes. Address: Hungary.

• **Summary:** See next page. Published 15 Feb. 1928.  
Application filed 28 March 1924. The key date appears to be: Issued 25 July 1928. The Czech word for soybean is sója. In the Czech title, the term sojovych bobu means soybean.

Address: Budapest.

• **Summary:** Note: This is the earliest document seen (May 2015) that mentions Edelsoja, a whole (full-fat) soy flour developed by Dr. Laszlo Berczeller. Seven other publications mentioning Edelsoja also appeared in 1928.

Note: The subtitle of this periodical is “Magazine for all a woman’s interests” (*Zeitschrift für alle Interessen der Frau*). Address: Praesidentin des Bundes oesterreichischer Frauenvereine.

69. **Product Name:** [Edelsoja (Whole Soy Flour)].  
**Foreign Name:** Edelsoja.  
**Manufacturer’s Name:** Oesterreichische Soja-Aktiensgesellschaft.  
**Manufacturer’s Address:** Vienna, Austria.  
**Date of Introduction:** 1928 October.  
Kon. 1930. Maka i pieczywo. Discusses the nutritional value of Edelsoja soya bean flour, and especially its vitamin and mineral contents.  
Kon and Markuze. 1931. Biological value of the proteins from breads... p. 1476. “The soya bean flour ‘Edelsoja’ was purchased from the Oesterreichische Soja-Aktiensgesellschaft in Vienna. It is manufactured under a secret process (Berczeller) and is stated by the manufacturers to keep indefinitely without becoming rancid although it contains about 20% fat.”  

Note: This is the earliest known commercial soy product made in Austria.

Dr. LÁSZLÓ BERCZELLER, BUDAPEST.

Způsob zušlechťování sojových bobů.


Nový způsob má za účel zušlechťování sojových bobů, které v surovém stavu mají chuť velmi odpornou. Toho se dosáhne podle vynálezu tím, že bobu podrobí se účinku vodní páry, a sice účelně nasycené páry, po tak krátkou dobu, že pohltí jen zcela nepatrné množství vody a bílkoviny nejsou poškozeny. Tímto krátkým zařazením změní se bobov téměř úplně. Zmizí od-
Published. [Ger]

- **Summary:** Discusses a lecture by Mrs. Professor Haller about Edelsoja powder (Edelsojapulver), a new kind of soy flour.


- **Summary:** Edelsoja is a yellow powder resembling flour that has a fatty feeling. It is odorless and has a weak, almond-like slightly sweet taste. It is also known as soybean meal (Soja-Mehl), however this designation is erroneous because it is fundamentally different from [wheat] meal or flour in its chemical composition, its properties, and in the ways it is used.


- **Summary:**: A German-language summary of talks given at a session of the Bund Oesterreichischer Frauenvereine. Address: Austria.


- **Summary:**: At the meeting of the Union of Austrian Women’s Societies talks about Edelsoja were given by: Mrs. Hofrat Hertha Sprung, Dr. Ernst Kupelwieser, Mrs. Regierungsrat Olga Hess, Dozent Richard Dolberg, Hofrat Prof. Leopold Moll, Prof. Dr. R. Wasicky, Hofrat Prof. Haunalter, and Prof. Zederbauer. Address: Austria.


76. *Welt am Morgen (Die)* (Vienna, Austria). 1928.


- **Summary:**: In Austria, Privy Councillor (Hofrat) Prof. Dr. Leopold Moll obtained good results by adding soya flour to the diets of tuberculosis patients in sanitariums. “In order to give a food very rich in proteins for certain diseased conditions, particularly in cases of badly-nourished babies and infants, we gave them pudding containing Berczeller’s soya flour. In the cases of tubercular children, especially, the result was a great success. We also gave this flour to those children who did not thrive on cows’ milk, or were unable to digest it properly. In cases of lack of appetite, we also gave soya flour in order to concentrate the food; when given twice daily it acted well in cases of infants who were ill fed.” Address: Direktor, Reichsanstalt fuer Mutter und Saeuglingspflege [State Inst. for the Care of Mothers and Babies].


Hopkins—the essential nature of things. It was the British physiologist theory dominated nutrition physiology. This theory only now.

recommending the consumption of soybeans for some time Meanwhile, European physiologists have been A little nutritional physiology:

all things soy, which has only been imported into Europe in name, or in its pure state, the general public is ignorant of oil has even been added to meals at inexpensive restaurants, developing quickly in France. Moreover, for some time, this in 1926, and 7,930 tons in 1927. Soybean oil use is therefore virtually nil in France, it reached 4,630 tons in Great Britain imported 46,000 tonnes and Germany imported 364,000 tons.

These very modest French import figures are due to the fact that, even though they were not being consumed, soybean seeds (graines de soya) were categorized by our customs duty as edible seeds (and are therefore subjected to a duty of 2 francs [per kilo], and 50% ad valorum) (2 fr. 50% de la valeur) as opposed to the category of oleaginous seeds that includes peanuts, which we actually do often eat grilled. This is not the only consequence of our customs duty.

Since seed importation is essentially banned due to a protectionist law, we are forced to import almost all of the soybean oil (huile de soya) that is used in soap manufacturing and in the production of edible oils and dietary fats. Protectionist policies have always been a double-edged sword! While the production of this oil is virtually nil in France, it reached 4,630 tons in Great Britain in 1926, and 36,420 tons in Germany. We imported 4,801 tons almost exclusively from Germany in 1924, 6,437 tons in 1926, and 7,930 tons in 1927. Soybean oil use is therefore developing quickly in France. Moreover, for some time, this oil has even been added to meals at inexpensive restaurants, under other names, or added in large quantities to olive oils. And since soybean oil is not used or consumed under this name, or in its pure state, the general public is ignorant of all things soy, which has only been imported into Europe in large quantities since 1908."

A little nutritional physiology:

Meanwhile, European physiologists have been recommending the consumption of soybeans for some time now.

Towards the end of the last century, the German energy theory dominated nutrition physiology. This theory only considered measurable manifestations, disregarding the essential nature of things. It was the British physiologist Hopkins—the first to our knowledge—who showed through experiments that there are more or less significant physiological effects depending on the nutritional matter. His experiments with young animals proved that these animals will die if their food lacks specific nutritional matter, which we now know as vitamins. Vitamins are not defined chemically, but they are absolutely necessary for proper nutrition. Animals fed only wheat would slowly die, while the others, fed exclusively soybean seeds, would thrive.

The “Chinese bean” (pois chinois) [soybean] contains an albumin that is as complete as albumin from animals. In addition, soy fat (graisse du soya) contains a vitamin that young animals in particular need for cell formation.

Note: Translated by Elise Kruidenier, Seattle, Washington. Address: France.

The soybean is hardly known at all in France except by some rare importers of Asiatic seeds. In 1924 only 31 tonnes (metric tons) were imported, in 1925 only 8 tonnes, and in 1926 only 6 tons, whereas in 1926 Great Britain imported 46,000 tonnes and Germany imported 364,000 tons.


**Summary:** Contents: The soybean (le soya) in France. The soybean in the Far East [East Asia]. A little alimentary physiology. Soy flour (La farine de soya [of Dr. Berczeller]). An ideal colonial food.


**Summary:** A compilation of articles reprinted from various sources on the soy flour invented by Berczeller. Volume I contains publications from 1925 to 1928 by: Barry and Freud, P. Frankfurter, John Freud, William Geroe, Fritz Loew, T.R. Parsons, V.F.A. Richter, Josef Szanto, and Helene Wastl. Each of these articles is cited separately. Address: Austria.


**Summary:** Following a 1-page introduction is a list, of 100 or the laboratory’s publications on subjects related to physiology, food, and nutrition. Prof. Berczeller is an author of all but four of these publications, which are listed in approximately chronological order from 1921 to 1928. Other co-authors are H. Wastl, J. Freud, B. Szilard, L. Billig, and P. Frankfurter. Other primary authors are H. Wastl and P. Frankfurter.

The earliest soy-related publication (with soya mentioned in the title) is from 1922—“Die Untersuchung des Sojamehles” (Biochemische Zeitschrift April 17, p. 313-19). No. 69 states that Berczeller presented a lecture on soya flour in Moscow in 1925 to the professors of the faculty of the highest economic advisors.

At the end of the list is a half-page obituary (In memoriam) for Frl. L. Billig, who worked in Berczeller’s laboratory. Address: Vienna, Austria.


**Summary:** Includes a comparison of the food value of soy flour with other products.


• Summary: It is very difficult to introduce a new foodstuff into the general diet. “The history of nutrition gives few examples of this kind. In the pre-scientific era, 400 years ago, the potato was introduced in Europe. It took many decades, perhaps a couple of centuries, to make it popular. This is hardly surprising if we just remember that the means available at those times did not allow an exact scientific judgement [judgment] or commercial propaganda in favour of the new product.”

Is there any necessity of dietary reform today? A careful review convinces us of the uneconomic way we obtain our food supply. “There will hardly be a possibility of reducing the expenses for vegetable foodstuffs. These contain almost directly the converted energy of the sun. Quite different is the outlook for the animal protein. Here the enormous waste of energy in the process of transformation of vegetable calories into animal calories is plainly visible. A simple illustration of this fact is yielded by the comparison of the prices of one vegetable with one animal calorie... we pay up to ten times as much for the animal calorie as we pay for the vegetable one. Here... the national economic necessity of the food reform is plainly demonstrable... The hygienic possibility of such a reform is the next problem. Medical Science has to reject an undiscriminating vegetarianism. We cannot dispense with the animal protein, without an equivalent substitute. Any of the vegetable proteins, now in general use, cannot possibly compete, in the sense of equivalence to meat, with the Protein of the Soya Bean. ”

The best way to consume soybeans is in the form of Berczeller’s Soya Flour. It retails for no more than 3 pence a pound. “The ‘food reform’ might be perhaps the key to the problem of financial struggle. Let us say to the shortsighted cautiousness that what appears today a private or national economic possibility, will become tomorrow a mathematically inevitable necessity of human nature.”

Address: Asst. Physiologist, University College, Cork, Ireland.


• Summary: The author reviews the literature on the production and composition of soybeans, the manufacture of soybean flour, and previous studies on its utilization as determined chiefly by metabolism experiments on mice, and reports metabolism experiments conducted on human subjects with bread made from a mixture of rye-wheat flour and soybean flour, the latter comprising 20% of the bread... It is concluded that the soya bread is less well utilized than rye-wheat bread.

In rat experiments, the rats lived 50% longer on dehulled soybeans than on whole soybeans, and 50% longer on whole soy flour than on defatted.

An analysis of soybean meal conducted by Hansa Muehle on 29 October 1920 shows that the oil content can be reduced to less than 0.1%. Other analyses show an oil content of from 0.46% to 0.8%. When soybeans are defatted the oil content of the meal rises to near 50% The above-mentioned soybean meal made by Hansa Muehle was found to contain 51.2% protein. The author found defatted soybean meal to contain 47.82% protein, and Feche (1925) found 49.5% to 49.8% protein. Soybean flours of this type, a by-product of soybean oil production, were already known before World War I, and their use was strongly encouraged during the war. By 1913 the Hull Oil Engineering Company in Stoneferry, England, was manufacturing a soybean flour under the name “Homco.” As early as 1896, Timpe in Magdeburg introduced a commercial defatted soybean flour containing 51.6% protein and 0.51% oil. By 1913 a flour named Aguman had been introduced in Germany by the Agumawerke. It is not clear whether or not Agumamehle, which appeared later, was identical to Aguma. Agumamehle was widely used during World War I as a substitute and extender for rye- and wheat flours, which were is short supply. Stange reported in 1915 of a new fortifying flour (Kraftmehl) named Ehrenpreis that was already on the market. During the 1920s in Germany, the two most popular soy flours in Germany were the defatted soy flour made by Hansa Muehle in Hamburg, and the whole soy flour made by Berczeller. Berczeller sent Neumann samples of his flour, starting in April 1923. Address: Direktor des Hygienischen Staatsinstituts, Hamburg.

• **Summary:** Three volumes bound in one. This is a compilation of articles reprinted from various sources on the soybean flour invented by Berczeller. Address: Laboratorium fuer Ernaehrungsforschung, Vienna, Austria.


• **Summary:** Contains many recipes. Address: Laboratorium fuer Ernaehrungsforschung, Vienna, Austria.


• **Summary:** Briefly discusses Berczeller’s new soy flour.

“For many centuries the Soya bean has been used as a food in China and Japan. The first description of it dates back to 2836 B.C. Nevertheless, it was not till the second half of the last century that a combination of circumstances arose which led to its more extended use. From 1870 onwards there set in a great stream of Chinese immigration to Manchuria, and from that time the cultivation of Soya increased enormously; large quantities were, and still are, exported from Manchuria into Japan, China and Europe.

“In Europe the possibilities which it offered as a foodstuff of extraordinarily high value were not generally recognised until after the Vienna Exhibition of 1873. In view of the fact that, as compared with wheaten flour, the bean is about four times richer in protein and nearly twenty times richer in fat, it is not surprising that many attempts were made to prepare from it a product, such as flour, which would be acceptable to the European palate. But serious difficulties were encountered owing to the rapid development of rancidity; hence it came about that complaints were made concerning the bitter taste of the products and their purgative powers. The result was that attention was directed to extraction methods, which aimed at the removal of the cause of rancidity, but these were doomed to failure for the simple reason that the extraction of oil”—is in itself a nutritive and biological value of Soya products. Address: UK.


• **Summary:** This article summarizes the contents of a book titled *La soja e l’alimentazione nationale*, by V. Ducceschi [Milan: Vallardi, 1928].

On page 158, Prof. Carlo Foa provides figures for Italian nutrition in comparison with other countries: Italy has 909,750 calories available per person per year; France 1,358,300; England 1,380,000; Belgium 1,432,500; the United States 1,866,250.

The scientific Commission on Food has established that the minimum consumption for an average person is 1 million calories per year. Italy’s national average falls short of this figure. One must remember that the available food is not distributed equally among individuals; rather, the distribution differs by social groups and by income. For example, landless peasants in southern Italy barely manage to get 400,000 calories per person per year, whereas the rich typically get significantly more than the 1 million calories a year.

Note: The story of Carlo Foa is similar to that of Laszlo Berczeller, but much less dramatic. He was a renown Italian physiologist of Jewish descent who lost his chair in medical school because of the anti-semitic policies of the Mussolini’s fascist regime.

In 1938, Mussolini promulgated the Racial Laws, officially with the aim of safeguarding the purity of the Italian race in conquered African colonies. However, their true intent was to persecute the Italian Jewish community in agreement with the policy of Nazi Germany. In accordance with the Racial Laws, all non-Aryans were banished from professional activities and were evicted from public, social, and academic life. As a result, 98 full professors in Italian universities were removed from their academic positions. In medical schools, physiology, more than other discipline, lost the most prominent faculty members. Of the 17 full Professors of Human Physiology, five were of Jewish descent, and all were evicted: Carlo Foa of Milan was one of these five. He was forced to leave Italy and take refuge in a foreign country. At the end of World War II Foa returned to Italy and resumed his previous academic position.


• **Summary:** The article begins: “It is not unlikely that the erection, now nearing completion, of a factory in North London to produce soya bean flour by the Berczeller Process will mark the first step in the founding of a new British industry.”

“At present soya flour is being manufactured at Vienna and Budapest, and the erection of another factory in the Hungarian capital is said to be necessitated by the large demand there... Soya is used to advantage as an ingredient of chocolate, replacing to some extent the relatively expensive cocoa-butter. A chocolate containing 10 per cent. soya, which was tested, had a slightly bitter, but quite attractive flavour.
Another sample, with 20 per cent. soya, had a milder taste. A cheaper chocolate, containing, for the first time, neither cocoa-butter nor any substitute beyond 10 per cent. soya, had an extraordinarily agreeable flavour. There can be little doubt that soya-chocolate will take its place amongst the concentrated foods used by explorers and others.

“In Vienna, soya flour is being used to an increasing extent in scones, biscuits, and other confectionery. It acts as an admirable shortening agent. As a binder and filler, it is also being used for sausage-making, replacing farina and other fillers.

“In this country, until the invention of the Berczeller Process, soya was only used as a source of cooking and margarine oils...”

“In a recent interview given to Dr. Berczeller, Mussolini [of Italy] declared his intention of introducing legislation enforcing the use of a certain amount of soya flour in the manufacture of polenta, the staple maize foods, and bread.”

Photos show: (1) The outside front of the factory near completion for making soya flour in England. (2) The equipment used for “treating soya beans by the Berczeller Process.”

Note 1. This is the earliest document seen (March 2010) that uses the term “soya” in connection with flour.

Note 2. This is the earliest document seen (March 2010) that mentions Benito Mussolini, the Italian fascist premier (1922-1943), in connection with soya or soya flour.

95. **Product Name:** Soyolk (Whole Soy Flour).

**Manufacturer’s Name:** Soya Flour Manufacturing Co., Ltd.

**Manufacturer’s Address:** 7 Mincing Lane, London, E.C.3, England. Phone: Royal 7565, 7566.

**Date of Introduction:** 1929 February.

**Ingredients:** Soybeans.

**How Stored:** Shelf stable.

**Nutrition:** Protein 45%, fat 20%, carbohydrates 24%, lecithin 2%, vitamins A, D, and B. No starch (Feb. 1929).


Ad in British Baker. 1930. May 9. p. 31. “Soyolk. The Great New National Food. Pure soya bean flour—the only pure edible product of its kind on the market—containing 20% fat with very remarkable properties which make it invaluable to both Baker and Confectioner.”


Ad in Confectionery & Baking Craft. 1941. Oct. &

Ad in Baker’s Review. 1957. Feb. 15. p. 284 (264?).


• Summary: “... famous for perfecting a flour from soy beans. He says, “Yeast is in some respects of even greater importance to man than milk. Science has proved experimentally the long recognized life-preserving, curative properties of yeast.”

Note 1. A small photo shows Laszlo Berczeller.
2. This is part of a larger ad for yeast.

97. Fleischmann Co. (The). 1929. Prof. Dr. Laszlo Berczeller of Vienna, international authority on nutrition, says: “Yeast is one of the few foods which definitely improve health” (Ad). New Yorker. April 27. p. 33.

• Summary: An advertisement for Fleischmann’s Yeast. A large portrait photo shows Prof. Dr. Laszlo Berczeller reading a book. Below the photo we read: “Dr. Berczeller holds degrees from three great universities in the Old World–Munich, Strasburg, and Budapest. His own government provides him with a laboratory for research. Recently newspapers in America reported his latest contribution to mankind–the perfecting of a new, cheap and highly nutritious [soya] bean flour–expected to help relieve the economic distress of Central Europe.” Address: Health Research Dept. Y-96, The Fleischmann Co., 701 Washington St., New York.


• Summary: “As a result of two meetings held last month it was decided that the Royal Empire Society formerly the Royal Colonial Institute, should encourage soya cultivation in the British empire and a Soya Cultivation Committee was set up with Mrs. E.A. Hornibrook, Fellow of the Royal Empire Society as honorary secretary. Through the courtesy of Dr. L. Berczeller of Vienna, tubes of Soya bacteria are now available in London and soya seed in bacteria cultures may be obtained through Miss Hornibrook, at cost. Recognises the importance of inoculation. Entomology ‘The soya will grow well wherever.’ Through the discovery of a special process of fractional distillation the objectionable elements in the bean can now be cheaply removed and the meal [flour] rendered fit for human consumption. A factory has been established in England, and as soon as British beans are available preference will be given to these. An important consideration is that the tropical flours such as arrowroot, sweet potato canna tarro and banana flour can now, by admixture with soya meal, be manufactured into wholesome and economical biscuits and cakes. Soya chocolate has already become popular on the continent and Empire cocoa producing countries should therefore benefit greatly. Further information will shortly be available in the Journal of the Royal Empire Society.”

Note: This is the second earliest document seen that uses the word “soya” as a noun.


• Summary: Discusses the process developed by Berczeller for making a debittered (entbittern) soy flour named Edelsoja, whose protein, fat, and vitamins are not changed, and which is inexpensive. It contains 9% water, 41.5% protein, 20.3% fat, 20-24.8% carbohydrates. Its protein is of high quality. It has the advantage over meat of not creating uric acid.

The author gives 11 institutional recipes (100 portions) with and without using Edelsoja, sometimes in combination
with meat. For each he gives the ingredient weight, price of each ingredient, the calories and price per portion with and without Edelsoja, and the saving per 1,000 portions by the use of Edelsoja. He then gives 7 recipes for diabetics, with a nutritional analysis of each. Address: Direktor des Krankenhauses der Stadt Wien [Vienna], Austria.

* Summary: Contents: Introduction. Production–inoculated soil. Cultivation and manufacture. U.K. demand. “With a view to stimulating the cultivation of the Soya Bean in the British Empire, a movement has been inaugurated by Mrs. Ettie A Hornibrook. A meeting in London, organised by Mrs. Hornibrook, was recently addressed by Dr. Berczeller, a Hungarian scientist, who has devised a new process of manufacturing Soya flour so as to render it fit for human consumption.”

Mr. Berczeller is willing to supply tubes of suitable strains of bacteria for inoculation of soybeans, plus directions, to any Bacteriological Laboratories requesting them. Mrs. Hornibrook's address is given as c/o The Soya Cultivation Committee, Royal Empire Society, Northumberland Ave., London, W.C.

“The demand for the soya bean and its products in the United Kingdom is shown by the fact that during the years 1923-1927 the United Kingdom imported soya beans and products to the value of £12,767,092 from foreign countries; from British countries she imported only 533 tons of the Soya and its products, to the value of £6,556. Practically all this material was required for home consumption.”

In closing his address, Dr. Berczeller stated: “To promote the consumption of soya flour, a suitable organization is essential, the special object of which will be to teach the people the dietary value of the soya flour and the proper household methods of using it. On these lines, soya flour will surely become popular within a comparatively short time. People do not easily take up any food to which they are unaccustomed, but teaching will overcome their prejudices.

“Especially for the native populations of the British Empire, soya flour will be invaluable at the present time. The proper feeding of the native populations is not only a problem for the White Race, but it is an obvious duty. To help the natives on these lines, we must know far more of their food and nutrition than we know at present.” Address: Editorial and Publishing Offices: 3,5&7, Old Queen Street, Westminster, London, S.W.1.

* Summary: Dr. Berczeller, a “Hungarian scientist, has developed a new process for manufacturing soya flour so as to render it fit for human consumption.” Address: England.

* Summary: The British must learn the value of foods from other countries. “Still another example is the establishment in England of a soya-flour factory, where soya is so treated as to be fit for human consumption (as it has been for many thousand years in the Far East). In this case the objectionable elements (etherial oils, &c.) are distilled by heating the soya at a low temperature for a long time—a development from the ancient practice of parching pulse suggested by Dr. L. Berczeller, of Vienna.” The same treatment applied to groundnuts might make them more palatable and digestible. Address: The Royal Empire Society, Northumberland-avenue, W.C.2.

* Summary: “Gentlemen: I have just had the privilege of reading your very interesting little booklet called ‘Soyolk’, and am writing you to request you to send me several copies of this pamphlet.

“To explain, I am one of the stockholders in the Shellabarger Mills and Elevator Company, which concern has flour mills and elevators throughout the state of Kansas and manufactures wheaten flours for domestic and foreign consumption. I am also the controlling stockholder and president of a new company called the Shellabarger Grain Products Company of Decatur, Illinois, whose chief business will be the manufacture of soya bean oil, and soya bean oil meal, also other products of the soya bean. Our family (the Shellabargers) have been flour and grain millers in this country since the year 1775, and are of course, very much interested in anything new along our line.” He would like to license the rights to manufacture Soyolk.

The response letter from CEF (Perhaps Christian Ferrée?), dated 6 July 1929 states: “We may mention that we are proprietors of the American Rights to manufacture this product, but are not yet in a position to discuss the question of establishing a factory there. We expect that in the near future two of our directors will be visiting America for the purpose of organising a Company for the manufacture and distribution of Soyolk, and when this time arrives we shall let you know of their arrival in plenty of time to arrange an interview with you.” Enclosures: Soyolk pamphlets. 1 lb of Soyolk under separate cover.

Note: This is the earliest document seen (Aug. 2005) that mentions Shellabarger Grain Products Company (Decatur, Illinois) in connection with soy. Address: 615 South Sigel St., Decatur, Illinois.
grinding to a foodstuffs, however, are the possibilities of the bean, after “Of more particular interest to the manufacturer of lubricating and lamp oils, etc., as well as being a constituent of salad and cooking oils, a multitude of uses, being utilised in the manufacture of “The same general lines of application have been and the residual cake is fed to dairy cows or to store cattle. almost entirely used for the oil which is extracted from it, “The actual production of the soya bean is only in its infancy in Europe, but in the United States of America its cultivation is spreading, and probably now reaches one million tons of beans per annum. In America it has been almost entirely used for the oil which is extracted from it, and the residual cake is fed to dairy cows or to store cattle. “The same general lines of application have been exploited in European countries that have imported the soya beans from China, Japan, and Manchuria. The oil has a multitude of uses, being utilised in the manufacture of margarine, glycerine, soap, linoleum, paints and varnishes, etc., as well as being a constituent of salad and cooking oils, lubricating and lamp oils. “Of more particular interest to the manufacturer of foodstuffs, however, are the possibilities of the bean, after grinding to a flour, as an addition to the cereal foods and confectionery of which we Western people are so fond. During the War the whole bean was ground up and added to bread in Germany, but was found to give rise to digestive troubles which more than outweighed the nutritional advantages which its chemical composition would lead one to expect.” Address: England.

105. Ford, W.P. 1929. Soya bean flour: Its value to the British confectioner. Confectionery Craft. Aug. 4 p. Reprinted in: L. Berczeller. 1930. Publications on Berczeller’s Soy Flour. Vol. III. 4 p. [Eng]* * Summary: “A short article in last month’s issue outlined the value of the soya bean in its native home in the Eastern hemisphere, where it has been utilised for human food for centuries, and it is interesting to compare with this the uses to which it has been put by Western peoples.

“The actual production of the soya bean is only in its infancy in Europe, but in the United States of America its cultivation is spreading, and probably now reaches one million tons of beans per annum. In America it has been almost entirely used for the oil which is extracted from it, and the residual cake is fed to dairy cows or to store cattle. Almost entirely used for the oil which is extracted from it, “The actual production of the soya bean is only in its infancy in Europe, but in the United States of America its cultivation is spreading, and probably now reaches one million tons of beans per annum. In America it has been almost entirely used for the oil which is extracted from it, and the residual cake is fed to dairy cows or to store cattle. Almost entirely used for the oil which is extracted from it, “The actual production of the soya bean is only in its infancy in Europe, but in the United States of America its cultivation is spreading, and probably now reaches one million tons of beans per annum. In America it has been almost entirely used for the oil which is extracted from it, and the residual cake is fed to dairy cows or to store cattle.

106. Berczeller, Selma. 1929. Verfahren zur veredelung von Oel bzw. koagulierbares Eiweiss enthaltenden Produkten [Process for the refining of oil, especially that containing coagulable protein]. Austrian Patent 133,383. Aug. 24. 2 p. Issued 26 May 1933. [Ger]* * Summary: Dry dehulled soybeans (Geschälte Sojabohnen) are heated to 80-90ºC and then passed through a double-walled vessel which is divided into several compartments. They are heated by a vapor stream to about 40ºC, then passed through a dry-air stream in such a way, that each chamber flooded with hot steam is followed by one charged with dry air.

Note: Soybeans are mentioned 3 times in this one paragraph. Address: Vienna [Austria].

107. Grain Dealers’ Journal. 1929. Soy beans for bread. 63(5):335. Sept. 10. * Summary: A flour or meal made from soy beans is now on the market. The process was devised by an Austrian, Dr. L. Berczeller. This tasty and nutritious flour (containing 40% albumen {protein} and 20% fat) adds to the keeping quality of products in which it is used. The flour can be used to make bread that is claimed to be more wholesome than brown bread—and yet it the bread is white. “Bread made from the meal is said to resemble the almond in taste.” Its popularity is rapidly increasing in Austria.


Tables: (1) Comparison of the nutritional composition of soybean flour [defatted], wheat flour, oat flour / meal; soy flour has by far the highest protein content (52.2% vs. 11.6% for wheat flour) (p. 16). (2) Analysis of the minerals in soy flour (p. 16-17). (3) Solubility of the protein: Of the 52.2% crude protein, 49.7% is pure protein, 33.9% is soluble in crude water, and 36.1% is soluble in hot water (p. 17). (4) Content of each of the amino acids (p. 17). (5) Comparison of the cost of digestible soy protein with the digestible protein from other protein sources, such as wheat flour, rye flour, peas, lentils, beef, egg (without the shell), cheese, and milk. Soy flour is by far the least expensive; egg protein is the most expensive. Address: PhD.

109. Medical Press. 1929. New preparations. Soyolk (Soya bean flour). Dec. 18. p. 506-07. * Summary: “Recently Dr. Berczella [sic, Berczeller] (Vienna) has discovered a method of treating the [soya] bean so that the bitter principles are neutralised, and the tendency to rancidity is overcome. The Berczella process produces a flour containing the full content of fat protein and vitamins which keep perfectly under ordinary conditions. This flour has now been marketed under the name ‘Soyolk,’ and marks a welcome and notable advance in extending our food supply. ‘Soyolk’ is a pale-yellow finely-ground powder resembling household flour in texture. The starch present is less than 1 per cent., and Kreiss’ test for rancidity
gave negative results. It also contains a high proportion of valuable lipoids.

“Investigations by Professor Richter, Dr. H. Wastle [sic, Wastl], Professor Leersum, Dr. Josef Srzanto [sic, Szanto], Dr. Ernst Kupelwieser [sic, Kupelwieser], and other eminent biochemists, prove that the soya proteins are of first-class quality, approximating in their amino-acid derivatives in content and proportion to animal protein...”

Note: This is the earliest English-language document seen (Jan. 2016) that contains the term “soya proteins” (or “soya protein”).


• Summary: Discusses the use of soy flour for the nourishment of both the military and civilians during wartime.


Address: Dr., Vienna.


• Summary: Soy flour improves the nutritional value of bread. “In adding 20 to 25 per cent. of Berczeller’s soya flour to wholesome flour, the baker can produce a brown loaf equal in nourishment to the best beef. One pound of such bread is equal in food value to two lbs. of beef.”

“May I quote once more the remarks made at a banquet a few years ago [before 1922] by Mr. Winston Churchill: ‘It is of the highest importance that the West should learn the lesson of a cheaper standard of living which is taught them by the people of the East in the adoption of soya as an article of food.’” Address: Manager of Messrs Roman Uhl Nachfolger Josef M. Breunig, Vienna.


• Summary: The importance and food value of this soya bean flour are described. “A company has been formed for the production of Dr. Berczeller’s Soya flour in this country–The Soya Flour Manufacturing Co., Ltd., of 7 Minding [sic, Mincing] Lane, London, E.C. 3–and a large and well-equipped factory has been erected...”

Note: This company was the Soya Flour Manufacturing Co., Ltd. Address: England.


• Summary: A compilation of articles reprinted from various sources on the soy flour invented by Berczeller. Volume II contains publications from 1926-1929 by: L. Berczeller, Stefan Cmelik, L. Dirnfeld, Enzo Giasotto, A. Kramer, Dr. Ernst Kupelwieser, Dr. H. Prinz, Victor F.A. Richter, and A. Seeber. Each of these articles is cited separately. Address: Austria.


Address: Austria.


• Summary: During World War I, the author was in a regiment in Slavonia that used soya flour. Note: Slavonia is a region in today’s Croatia, between the Sava River on the south, and the Drava and Danube rivers on the north and east. Address: Oekonom; Sekt. Chef (Korija near Virovitica, Croatia, Yugoslavia).


THE SOYA BEAN AND THE NEW SOYA FLOUR

BY

C. J. FERRÉE

REVISED TRANSLATION FROM THE DUTCH

BY

C. J. FERRÉE and J. T. TUSSAUD

LONDON
WILLIAM HEINEMANN
(MEDICAL BOOKS) LTD.
1929

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Chinese chiang (paste), tou-fu or beancurd, beans consumed as a table vegetable, bean refuse and bean cake are used as a fertiliser and for fattening hogs, bean oil is used as an illuminant (where it has not been superseded by kerosene), as a substitute for lard in cooking, and as a lubricant for greasing axles and parts of native machinery, miso and natto. The increasing rate of its cultivation is encouraging, and an increase of its utility is predicted. Germany, the leading producer in Europe, consumes 0.5 million tons in 1928, in Russian, probably an article rather than a book). A table (p. 33) gives estimated world production of soya beans from 1923 to 1929 (6.6 million tons, forecast). The leading producers in 1929 (in million tons) are: China 5.250. Japan 0.580. USA 0.250. Java 0.120. Other Asiatic countries 0.400. A soya milk factory was recently established in Denmark (p. 54). Although this book contains a bibliography of 29 references, most are very incomplete.

Photos show: (1) A soybean plant with roots, pods, and leaves. (4) Nodules growing on soybean roots. (5) One pod and seed each from inoculated and uninoculated soybean plants. (7) An immense field of soybeans in Manchuria. (8) Soya beans awaiting shipment, in house-shaped stacks under tarps, at Dairen. (13) Seeds of the most important varieties of soybeans now grown in the United States. (10) Two horses and a farmer cultivating a field of soybeans. (11) Harvesting soya beans. (12) Well selected, clean soybean seeds. (15) A map (frontispiece) shows where soybeans are cultivated worldwide. An illustration (facing p. 2) shows "Shen-Nung, Emperor of China in 2838 Before Christ, called 'The Heavenly Farmer.' Reproduced from a print in a Vienna museum."

One bar chart compares the nutritional composition of soya flour with that of cereals and animal products, and other foodstuffs (p. 13), another compares the calories (p. 46), and a third compares the cost of 1,000 calories (p. 48). Marakujew (probably spelled Marakiev or Marakuyev), in "The Export of Manchurian Soya Beans and its Finance" (1928, in Russian, probably an article rather than a book) "estimates the production of Manchuria at 6 million tons at the utmost, the production of the whole of China at 16 million tons, and he is led to this figure by the conclusions of the Economic Bureau of the South Manchuria Railway, which estimates that the Manchurian crop in 1927 amounted to 37.1 million koubo (5.88 million English tons), of which 2.6 million tons originated from South Manchuria, 3.3 million tons from North Manchuria" (p. 32). A table (p. 33) gives estimated world production of soya beans from 1923 to 1929 (6.6 million tons, forecast). The leading producers in 1929 (in million tons) are: China 5.250. Japan 0.580. USA 0.250. Java and Dutch East Indies 0.120. Other Asiatic countries 0.400. A soya milk factory was recently established in Denmark (p. 54). Although this book contains a bibliography of 29 references, most are very incomplete.

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tons from North Manchuria. According to the calculations of this bureau, the home consumption of North Manchuria is something like 40 per cent. of the production, viz., 1.3 million tons; the remaining 2 million tons are for export. The exports of South Manchuria were estimated at 1 million tons” (p. 32). Address: London.


• Summary: Johann Christian Ferée was born in 1895.


• Summary: Contents: General information on Berczeller’s soy flour. The special significance for Berczeller’s soy flour for Italy: From an economic standpoint, from a social and hygienic standpoint. The possibilities for using Berczeller’s soy flour in Italy. The necessary practical measures. Address: Ing. Chem.


• Summary: The soybean could become a major export crop for Romania; it would be much more profitable for farmers to grow than corn or wheat. It must be emphatically pointed out that the total exports of Romania, even if it was soybeans instead of corn and wheat, could never satisfy the import needs of Germany; Germany would much rather buy its soybeans from Romania than from East Asia. In order to cultivate soybeans in Romania, it is necessary to plant seeds of the appropriate varieties and to inoculate them with soya bacterial cultures.

Less seed is needed for planting soybeans than wheat. The soybean enriches the soil with nitrogen and improves soil quality for subsequent crops of wheat and corn. The soybean has a relatively low need for water. Using the Berczeller process, a very valuable food can be made from soybeans—soya flour. Address: Dr., Austria.


• Summary: Bound in the back of L. Berczeller. 1928-30. Publications on Berczeller Soy Flour. Vols I-III. English translation of some parts published separately as “Expert Opinions on the Berczeller Soy Flour” (red hardcover binding; cited separately). Contains various letters and reprints of journal articles in German. Most of these are cited separately. Address: Josefstaedterstrasse Nr. 35, Wien, VIII. (Vienna), Austria.


• Summary: Bound in the back of L. Berczeller. 1928-30. Publications on Berczeller Soy Flour. Vols I-III. English translation of some parts published separately as “Expert Opinions on the Berczeller Soy Flour” (red hardcover binding; cited separately). Contains various letters and reprints of journal articles in German. Most of these are cited separately. Address: Josefstaedterstrasse Nr. 35, Wien, VIII. (Vienna), Austria.


• Summary: This brief book review begins: “Although the high nutritive value of the soya bean has long been recognized, efforts to popularize it among Western peoples have hitherto met with scant success, mainly because the bean itself is bitter and very difficult to cook. Also, soya flour prepared by ordinary methods soon turns rancid, owing to the high percentage of fat that it contains. Quite recently, however, Dr. Laszlo Berczeller, a Hungarian physiologist in Vienna, has perfected a process which yields stable, pleasantly flavoured and very nutritious soya flour.”


• Summary: Enumerated April 12, 1930 by J.E. B?nell. Sheet 10B, Enumeration District 19-1254, Supervisor’s
and above all the yield. Bread never “goes dry” when soy
flour is used. Because soya flour is a yeastfood, it livens up
fermentation.

“A special soya loaf containing 22 per cent. of the [soya]
flour and 78 per cent. of ordinary wheaten flour, with the
addition of 25 to 28 gallons of water per sack, has now been
put on the market, and this loaf has the same nutritive value
as the same weight of lean meat.” Address: Baking Expert,
Nutrition Lab. of Vienna, Austria.

• Summary: In 1924 Dr. Berczeller perfected a process for
making soya flour. “It has already come into general use on
the Continent, particularly in Austria, where it is a regular
ingredient of bread, rolls, cakes, and all forms of smalls.
The use of Soylolk in the baking and confectionery trades is
simplicity itself.” Gives details on incorporating Soylolk into
baking recipes. It improves the flavor and bloom of bread,
the color and texture of the crust, the keeping qualities,
and above all the yield. Bread never “goes dry” when soy
flour is used. Because soya flour is a yeastfood, it livens up
fermentation.

“I, Dr. Ladislaus Berczeller, of Bleichergasse 6, Vienna
IX, Austria, a Hungarian Subject, do hereby declare the
nature of this invention and in what manner the same is to
be performed, to be particularly described and ascertained in
and by the following statement:

“This invention concerns the treatment of soya beans
and bran obtained therefrom and has as its object to provide
an improved process whereby their further oxidation is
prevented.

“Investigations with soya beans have shown that
rancidity produced by subsequent oxidation only occurs
if small quantities of certain substances are present which
are very sensitive towards oxygen so that they are oxidised
by the mere presence of air at ordinary temperature if
the material is very finely divided; after oxidation these
substances become less volatile. These substances influenced
by oxygen also play a very important role in the change of
smell and taste of articles of food made from the seeds, the
said changes occurring at the same time as the products turn
rancid. The said changes occur mainly in the outer layers of
the seeds.

“In my earlier Specification No. 234,202 I have
described and claimed a process for improving or purifying
soya beans, if desired in germinated or husked condition,
which is characterised in that the beans are first heated in
a dry state and then while being agitated or moved in a
continuous stream subjected to the action of a stream of
low-pressure steam for a short period of time, for instance
about 10 to 12 minutes, so that they absorb only a very small
amount of water and so that the albuminous substances in
the said beans remain substantially uninjured.

“In my German Specification No. 406,170 the soya
beans in an unchanged, swollen or germinated condition,
are subjected to the action of steam, preferably saturated
steam for so short a time (about 10 to 12 minutes according
to the example given) that they only take up quite small
quantities of water, whilst maintaining the properties
of the albuminous substances and can then be dried in
known manner. According to my German Specification
No. 446,892 which is a Patent of Addition to Specification
No. 406,170, it is stated that while the process of the main
patent usually requires 10 to 20 minutes by employing the
seeds in husked condition 5 minutes of treatment are usually
sufficient. While these processes improve the soya beans
by removing the objectionable taste and smell therefrom
their keeping qualities can be still further improved by
means of the present invention according to which I have
found that subsequent oxidation of soya beans and bran
obtained therefrom may be prevented if the seeds or bran
are subjected to a treatment whereby the easily oxidisable
substances are removed from the seeds or bran as quickly
as possible and before they can become oxidised under the
influence of air and heat.

“With this object in view according to the present
invention the process for preventing the subsequent oxidation of soya beans and bran obtained therefrom consists in removing from the originating materials substances which are easily oxidised on contact with air or oxygen by subjecting the originating materials in a heated vessel to steam distillation, the steam being either passed continuously into and out of the vessel as steam or being formed therein and expelled or withdrawn continuously from the vessel as steam and in either case carrying off with it the easily oxidisable substances.

“According to one embodiment of the steam distillation the seeds contained in a heated vessel are subjected to the action of a flow of steam which is caused to leave the vessel as such.

“According to another embodiment of the steam distillation the seeds either containing water, or provided with water such as by soaking, in a quantity sufficient for producing steam are subjected in a heated vessel to the action of a current of gas, preferably inert gas, passed therethrough to remove the steam as it is formed.”

Two examples are given:

“1. In a vessel which is preferably provided with a steam jacket and a stirring, rocking or shaking device, soya beans are loosely spread in layers and treated during 40 to 50 minutes with saturated steam which is either produced in the outer jacket or is introduced after having passed through the jacket through a tube in the cover of the vessel. The steam is passed through the beans and is removed at the lower part of the vessel below the beans. The introduction of steam is preferably delayed until the contents of the vessel have reached a temperature of about 70º C. If the operation is carried out in this manner only small quantities of water are condensed at the walls of the vessel and on the beans.

“Soya beans treated in this manner do not show signs of oxidation, even if they are stored for a long time.

“2. Unhusked or husked soya beans (if desired after germination) are introduced into a vessel either unchanged if enough water is present therein or in a swelled condition, the said vessel being preferably provided with a stirring, shaking or rocking device. In the vessel the beans are treated with a current of hot dry gas, preferably an inert gas until the desired improvement has taken place. This result may be obtained at such temperatures and within such a time that the valuable components of the soya beans, valuable in respect of the nutrient factors, are in no way damaged. In this mode of operation a drying process may be dispensed with as the temperature of the gases may be so adjusted that the drying occurs simultaneously.

“In the case when bran, obtained from the seeds is employed as originating material, air may be employed in place of the inert gas.

“The flour made from soya beans treated in accordance with this invention has excellent keeping qualities and shows no sign of deterioration even if kept under normal conditions for a considerable period of time.” Address: PhD, Bleichergasse 6, Vienna IX, Austria, a Hungarian Subject.

• Summary: The preferred source is soybeans (Soyaboenner), but egg yolk is also mentioned. Three examples are given. The first word in examples 1 and 2 is “Soybeans” (Soyaboener). “Lecithin” (Lecitin) and “alcohol” are mentioned in all 3 examples. Address: PhD, Vienna, Austria.

• Summary: Natural substances containing lecithin are extracted with solvents for lecithin such as ethanol to remove lecithin and easily oxidizable substances, while there remains a stable substance. The initial substance may be steam-distilled to remove the easily oxidizable substances and then extracted to remove lecithin.

The first 3 (of 4) examples are based on the use of soybeans (fèves de Soja) cut into small fragments. Address: Resident of Austria.

• Summary: Dr. Berczeller is “a Hungarian Subject.” “This invention concerns a process for treating soya beans for the purpose of obtaining therefrom soya bean flour free from undesired substances of disagreeable taste and odour, and, if desired, lecithin also free from all injurious by-products.

“It is well-known that lecithin can be extracted from leguminous seeds, such as peas, beans and lupins, by means of alcohol, used in dilute or concentrated form and at ordinary or elevated temperatures. It is also well-known that soya beans contain lecithin. I have discovered. that by the application of this known process of lecithin extraction to soya beans there results a soya bean flour of good quality fit for human food.”

“The following examples illustrate how the process of the invention may be carried into effect.

“1. Comminuted soya beans, if desired after having been unhusked, are extracted by means of cold or slightly warm alcohol in a plant suitable for carrying out an alcohol extraction. The extraction residue is a light yellow powder ready to be used as an article of food for human nourishment.
The extract contains the lecithin which is still contaminated by substances of disagreeable taste.

“2. Soya beans are subjected to a short steam distillation process as described in Austrian Specification No. 106,346. Thereafter they are comminuted and extracted with alcohol as in Example 1. The residue is, as in Example 1, a flour immediately ready for use as an article of food for human nourishment. The extract is, in this case, of very agreeable taste and may be directly used as a food preparation or may be worked up according to the known method to yield lecithin.

“3. Soya beans are sprayed with water and unhusked in wet condition, the beans being at the same time swelled. The beans are then dried at about 100°C., comminuted and extracted with alcohol as in Example 1. A soya bean flour of good quality and a lecithin of agreeable taste is obtained.”

Address: PhD, Bleichergasse 6, Vienna IX, Austria.

131. Berczeller, Ladislaus. 1930. Procédé permettant d’empêcher l’oxydation ou le rancissement des produits d’origine végétale ou animale [Process for preventing oxidation or rancidity of vegetable or animal products].


• Summary: Vegetable and animal products are preserved by removing by steam distillation products which provoke oxidation.

Note: Soybeans (la fève de Soja; les haricots de Soja) are mentioned several times in this patent. Address: Resident of Austria.


• Summary: Discusses the nutritional value of Edelsoja soya bean flour, and especially its vitamin and mineral contents. Address: Biochemical Dep., State School of Hygiene, Warsaw, Poland.

133. Product Name: Soyex (Whole Soy Flour).

Manufacturer’s Name: Sojolk Company, Inc.

Manufacturer’s Address: Nutley, New Jersey.

Date of Introduction: 1930.

New Product—Documentation: This soya flour is made by the Berczeller process. Food Manufacture (London). Nov. 1931. p. 334-35. “Trade notes: Edible soya flour.” After importing Sojolk from the British company for just over a year, the American concessionaires operating this process, we are informed, have commenced milling activities in a large plant at Nutley, New Jersey, and are supplying numerous bakers, confectioners, and food manufacturers with their product, known under the trade name of Soyex.”


Note: This is the earliest known commercial soyfood product made in New Jersey.


• Summary: A compilation of articles reprinted from various sources on the soy flour invented by Berczeller. Volume III contains publications from 1928-1930 by: Dr. Cronshaw, W.P. Ford, Ettie Hornibrook, H. Prinz, Victor F.A. Richter, Hertha Sprung, and Fabian White. Each of these articles is cited separately. Address: Austria.


• Summary: Mostly references from “Arbeiten uber das Berczeller’sche Sojamehl.” Address: Manchuria.


• Summary: A Russian-language review and summary with a good bibliography. Address: Manchuria.


• Summary: Includes a discussion on the characteristics and nutritional value of soy flour. Address: Vienna, Austria.


• Summary: Contains 14 recipes for using Berczeller’s soya
flour to make: Rye bread (grey and dark), potato milk bread, Vienna imperial rolls, imperial rolls with over-night sponge, French and Vienna rolls with over-night sponge, mellow milk crescents and bread with over-night sponge, Vienna milk rolls and crescents, good rusk metabolism, sandwich loaves, bread for diabetics (with “2 lbs. of Berczeller’s Soya flour” and “2 lbs. wet gluten”), cheap fermented continental goods, fancy milk tea bread dough for brioches, flans, coreaths, etc., almond stollen, and fruit stollen. Address: Bakery expert, Vienna, Austria.


• Summary: “Amongst the various methods of using Dr. Berczeller’s new Soyflour in human nutrition its use in Breadmaking is undoubtedly of the highest importance from the point of view of the hygiene of nutrition and also of the social economy. The physiological side of this question has been already dealt with by P. Frankfurter, therefore I am going to treat this subject very elaborately only from the point of view of the technology of baking.

“Quite a number of medical and economical writings have been published concerning the new Dr. Berczeller soyflour; they are mentioned in the annex giving detailed information about its treatment. The chemical composition of the Berczeller soyflour given by Dr. H. Wastl is the following:

A table compares the chemical composition of Berczeller Soyflour (41.5% protein, 20.36% fat and 470 calories per 100 gm) is compared with finest wheat flour, rye flour, oat flour, maize flour, bean flour, and pea flour.

We see that the soyflour contains about 4 times as much protein as the cereals and twice as much as the pulses (beans and peas). The content of fat is 15-20 times higher in the soyflour than in the wheat or rye flour. It is impossible to make bread using only soyflour but it serves to enhance the nutritive value of bread, and to improve the quality of bread from a technical point of view.

It is well known that industrial workers and the great majority of the agricultural population crave animal proteins. Every increase in the income of the poorer classes is followed by a simultaneous increase in their consumption of animal proteins.

This is one of the greatest problems of the white race today—how we can satisfy this instinctive desire of the broad masses of people. In this respect, the new soyflour facilitates considerably the food problem.

Note: This is the earliest English-language document seen (Nov. 2013) that contains the word “soyflour.” Address: Baking Expert of the Nutrition Lab. of Vienna.


• Summary: Contrary to the use of the new Soyflour in Breadmaking its use in pastries, milk- and fancy-breads and the like, acts as a perfect substitute for eggs, fat and milk, besides enhancing the nutritive value of these goods. This means, of course, a saving of these materials and consequently a saving in the cost of production. Address: Baking Expert of the Lab. of Nutrition Research, Vienna, Austria.


• Summary: Samples of Edelsoja soy flour were provided by “Deutsche Edelsoja A.G., Dorotheenstr., Berlin NW 7, Germany.” Address: Stabartz Dr., kdt. zur Klinik. II. Medizinischen Universitaetsklinik der Charite, Berlin.


• Summary: Dr. Berczeller, an Hungarian scientist, has modernized the traditional process for making soya flour. He found that by distillation at a low temperature, the elements unit for human consumption can be removed. The resulting Soyolk flour is very rich in protein and vitamins.

Europeans have seen the commercial value of the new flour and factories are being set up at important centers. Among the first constructed are those located in Turin (Italy), Budapest (Hungary), Vienna (Austria), and London (England); all of them turn out Soyolk. Now there is great interest in cultivating the Soya Bean in Europe. Address: Mukden, Manchuria.


• Summary: Contents: Historical background. Properties and uses. Growing interest in soy bean preparations in different countries. Soya foundation proposed.

This article begins: “The soy bean is a plant of early cultivation in China. Its use dates back to the beginning of China’s agricultural age under the Emperor Shen Nung. It is mentioned in the Ben Tsao Gang Mu, the ancient ‘Materia Medica’ written in the year 2838 B.C. This bean is remarkable for its richness in oil (average 20 per cent), protein (average 40 per cent), and ash (average 5.5 per cent), and the almost complete absence of starch.

“Since time immemorial the soy bean has been the most
universal article in the Chinese dietary. It is also extensively used for food in Korea, Japan, Indo-China, the Philippine Islands, the Dutch Indies, Siam, and India. The Chinese make practically no use of dairy products, and the bulk of the people consume a very meagre amount of meat. Yet, in spite of this, they have lived for centuries on what appears to be a remarkably well-balanced diet by the use of the soy bean.

“Soy bean milk has been extensively used throughout the Orient since its discovery by the Chinese philosopher Whai Nain Tze long before the Christian era. This milk does not coagulate on boiling, but acids and rennet produce a curd-like precipitate. According to Fisher, soy bean milk gives a much finer flocculent precipitate in the stomach than cow’s milk. Its period of stay in the stomach is shorter. Its ingestion results in a feeble secretion of gastric juice; the period of secretion is also shorter. The peristaltic motion of the stomach is less after the ingestion of soy bean milk and more coordinated than in the case of cow’s milk.

“If soy bean milk is boiled with a solution containing magnesium chloride or calcium sulfate its proteins are precipitated. The cheese-like product obtained by pressing this precipitate is generally known as bean curd and is called in China ‘tofu.’ If fresh, it contains approximately 8 per cent of protein and 3 per cent of fat, and is digested, according to Oshima, to an extent of over 95 per cent. Fried tofu resembles beef in its content of protein and fat, and is called in China “the meat without the bones.”

“In the Orient tofu forms a very popular and almost indispensable dietary article.” Also discusses: Miso, chiang, Worcestershire sauce (“liquid soy sauce... when spiced, is sold under the label ‘Worcestershire sauce.’”), W.J. Morse of the USDA, soy bean foods in Europe, Prof. Berczeller, and work at the Physiological Institute of the University of Vienna under Prof. Durig and Dr. Wastl.

“In Russia, the soy bean is fondly called ‘our young revolutionary Chinese ally.’ Plant soy beans and you plant meat, milk, egg omelets,” is the newspaper cry. Efforts have been made all year to introduce soy bean dishes to restaurants and homes. A Soy Institute was recently organized in Moscow, as well as a special exhibition of soy foods at which 130 varieties of soy dishes, including cutlets, pastry, salads, candy, and beef, were shown. A dinner, prepared entirely of soy beans, was served to representatives of trade unions, factories, Red Army, and the Soviet press. The food was unanimously declared excellent...

“Soya foundation proposed: There are reasons to expect that the United States will become the leader in introducing the soy bean in the daily diet of the white race. An important step should be the establishment of a soya foundation in order to promote the creation of a national soya food research institute.” Address: Health Section, Bureau of Mines, Pittsburg, Pennsylvania.

144. Horvath, A.A. 1931. Soya flour as a national food.
“Twelve years ago [i.e., in about 1919] I had the good fortune to go to China and my first impression was that Occidentals have a number of things to teach the Chinese, but I have found that we have more to learn from them than we have to teach them. If we consider what nation was able to preserve its national character and its independence for a long period of time we must come to the conclusion that really the Chinese nation is the only nation which exists after 5,000 years. So we have to learn from the Chinese how to live and how to live in a reasonable way. China has suffered not once but many times from severe economic depressions but has recovered from them and I think we must pay more attention to the way the Chinese live and what they are using as food.”

“During the Civil War in this country, soybeans were roasted and used by the Southerners. They were called ‘coffee beans’... Soybean flour is used in ice cream. It is said that manufacturers are using it for the same reasons,—better taste, more smooth and better keeping qualities. (See article in Journal of Confectioners and the Ice Cream World of August, 1930).” Prof. Abel of Johns Hopkins found soy sauce stimulated digestion of carbohydrates.

“The soybean is peculiar for its richness in phosphorus and also richness in a certain substance, lecithin. This lecithin is an organic compound of phosphorus and belongs to a group of lipoids. Soybean contains around 1.6 per cent lecithin. This substance is one of the constituents of egg yolk and is the one which gives it its high value. It is a necessary constituent for the building up of the nervous system of human beings. Dr. Levine, of the Rockefeller Institute in New York, found that in soybean there is cephalin, a constituent of the human brain, and so we have two particular substances, which are used as material for the building of our nervous system.”

The Chinese soak soybeans overnight and then grind them between millstones, to get a cream. This cream is filtered through cheesecloth, then diluted with water and boiled. “They get a milk such as almond milk which is made from sweet almonds. Soybean milk contains oil and protein necessary to emulsification.

“This soybean milk has been used in China since time immemorial and in the streets of Peking one can see men carrying bottles labeled similar to our milk here. This soybean milk, if kept at room temperature for hours, will turn acid and coagulate. Curds are formed exactly as curds are formed in ordinary milk. But the Chinese cheese [tofu] is made not by turning the milk acid but by curding it in a special way. They use the mother liquid from sea water after table salt manufacture [nigari] or a little plaster of paris” [calcium sulfate].


• Summary: “The soya bean flour ‘Edelsoja’ was purchased from the Oesterreichische Soja-Aktiensgesellschaft in Vienna. It is manufactured under a secret process (Berczeller) and is stated by the manufacturers to keep indefinitely without becoming rancid although it contains about 20% fat.” The breads containing soya bean flour were two soya flour-wheat breads (90:10 or 80:20 wheat flour:soya flour), and two soya flour-rye breads (same proportions as the wheat breads). These were fed to rats. The composition of the diets is given and the average gain per gram of protein consumed. “The gain of 2.4 g per g of protein ingested produced by the soya-rye combination at an 8% level of intake is exceptionally good for vegetable proteins.”

Summary: “A supplementary relation exists between the proteins of white wheat flour and soya bean flour. There is a strong indication that a supplementary relation exists between the proteins of rye flour and soya bean flour. The biological value of the nitrogen of the crust was found to be lower than that of the crumb or of whole bread.” Address: Biochemical Dep., State School of Hygiene, Warsaw, Poland.


• Summary: “The pure edible soya flour (Soyolk) with a 20 per cent. fat content, prepared from the soya bean by the Berczeller process, is meeting with a ready response from many of the leading food manufacturers in U.S.A. After importing Soyolk from the British company for just over a year, the American concessionaires operating this process, we are informed, have commenced milling activities in a large plant at Nutley, New Jersey, and are supplying numerous bakers, confectioners, and food manufacturers with their product, known under the trade name of Soyex.” Discusses the many types of American foods in which Soyex is used.

Note 1. This is the earliest document seen (Nov. 2013) stating that the Soyex Company is located in Nutley, New Jersey.

“A new field which Soyolk is said to be invading is that of the ready-to-take health food drink... A breakfast food in which soya bean flakes or puffed beans appear is one of the latest applications of this valuable food material, and salted soya beans promise to compete with salted almonds, the new invader being not only considerably cheaper in cost, but also easier to digest.

“English manufacturers will not be slow to follow the lead given by those in the American food industry...”

Note 2. This is the earliest English-language document seen (Dec. 2012) that uses the term “salted soya beans” to refer to soynuts.

Note 3. This is the earliest document seen (Nov. 2013) that mentions soy flour in international trade.
Note 4. This is the earliest English-language document seen (Nov. 2013) that contains word “soya bean flakes”–used to refer to a food. Address: UK.

148. **Product Name:** [Edelsoja Whole Soy Flour].  
**Foreign Name:** Edelsoja Vollsojamehl.  
**Manufacturer’s Name:** Soya Flour Manufacturing Co., Ltd. Edelsoja?  
**Manufacturer’s Address:** Germany.  
**Date of Introduction:** 1931.  

**Archiv fuer Kinderheilkunde**  
**Summary:** Supports the use of soybean milk in infant diets. Edelsoja is mentioned on p. 86. Address: Universitaetskinderklinik, Rostok, Germany.

**Summary:** Soyolk soy flour is being increasingly adopted in manufactured foods. “In wholemeal bread, where 5 per cent. of Soyolk can be used, crumbling is substantially reduced whilst at the same time definitely increasing the yield of a sack-mix.” In confections, it can be used to replace some of the eggs and milk. The “soya protein is notoriously ‘thirsty’ and demands extra liquor [liquid] in all mixes where it is present. This added liquor naturally results in substantially increased yields, and is said to improve and extend keeping qualities of the manufactured article.” An excellent and inexpensive slab mix can be made without using either milk or eggs. Soyolk is also used in making chocolate to add nutrition; its lecithin reduces blooming or greying.

**Summary:** Discusses the composition of the soybean. “In contrast with Manchuria, where it is a common article of diet, the soybean is rarely used as such in these parts; but by means of various operations, among which is the action of certain fungi, several products are prepared from it. “These products, such as tempe kedele, taoko, tahoe, taokoan and ketjap are important items in the native diet. Except for the last mentioned, the preparation of these products is such that the albumins are preserved practically intact, so that, especially in tempe, as we were able to point out, the biological albumin value is very high... Soymeal, which is prepared by removing the husks and then pounding what is left, has the drawback that it tastes somewhat bitter and, in consequence of the high percentage of fat, soon becomes rancid... Berczeller, however, seems to have succeeded in obtaining an improved soy meal...

“Finally, in discussing the importance for the native diet of these beans and the products prepared from them, the author arrives at the conclusion that it is especially the albumins that are important, the people being practically vegetarian and these foods being, in addition, rich in carbohydrates.

“Thus the author expresses his approval of the fact that of late years the Department of Agriculture, Industry and Commerce has advocated the growing of the soybean and the consumption of the products prepared therefrom.”

Note 1. This is the earliest English-language document seen (the summary) (Sept. 2005) that contains the word “soy meal,” which apparently refers to whole (full-fat) soybean flour.

Note 2. This is the earliest document seen (April 2001) that contains the word taokoan. Address: Hoofd van het Analyselaboratorium te Buitenzorg, Java.

**Summary:** The present invention relates to a process for working up various sorts of natural materials of animal or vegetable origin, so as to obtain therefrom lecithin free from all injurious by-products, which treatment at the same time leaves a residue likewise free from undesired substances of disagreeable taste or odor. The particulars of the process according to the present invention are more fully explained in the following specification.

“I have been able to prove that materials of animal or vegetable origin which contain lecithin are accompanied by substances which are very liable to undergo oxidation, thus causing a very radical change in the lecithin as well as fatty or oil material from which the former is derived. My investigations have shown that the said substances liable to oxidation are volatile under certain conditions and may therefore be removed by a suitable distillation process from the natural material in which they are contained.

“One way for removing the said substances undergoing oxidation from vegetable products consists in subjecting the material to a mild extraction process with solvents that dissolve lecithin as well as the oxidizable substances.
After such treatment the vegetable product remaining in the residue is much more suitable for use as (or in) human food.

“A solvent particularly suitable for this purpose is ethyl alcohol or similar substances. The solvent may be used in a cold or hot state. During the extraction process the lecithins and other lipidlike accompanying substances of lecithins undergo very radical transformations thus imparting to the lecithine a disagreeable bitter taste and a nauseous odour. This transformation occurs especially at raised temperatures.

“If it is desired to use both, the residue and the lecithins for manufacturing preparations ready to be used for articles of food my improved process is used in combination with my Canadian Patent no. 246,312 in subjecting the materials containing lecithine before extracting the same with a solvent such as alcohol to a distillation [sic, distillation] process as described in my said patent. The distillation process may, however, also be carried out in accordance with my copending application Ser. No. ___ of August ___ 1930. This may be done by subjecting the said vegetable or animal products to a heat-treatment while at the same time vapours or gases are passed through the materials to blow off the undesired by-products. By this combined process I obtain lecithine as well as the residue totally free from substances having a disagreeable taste or odour and exceedingly suitable for human nourishment.

“Example 1: Comminuted soyabeans, if desired after having been unhusked, are extracted in a plant suitable for carrying out an alcohol extraction process by means of cold or slightly warm alcohol. The extraction residue is a light yellow powder [soybean flour] ready to be used as an article of food for human nourishment. The extract contains the lecithine which is still accompanied by substances of disagreeable taste...” Address: PhD, Vienna.

• Summary: The keeping quality of soy beans or meal [whole soy flour] is improved by alternate steam-heating and drying, coagulation of albumin being prevented by addition of aqueous ammonia, alkalis, or sugar.

“The following example serves to illustrate how the process according to this invention may be carried into effect:

“1. Husked soya beans if desired in swollen condition are heated in the dry state to about 80 to 90ºC. and are then passed through a jacketed vessel divided into several compartments. A current of steam at about 100ºC. and a current of dry air heated to about 40ºC. are passed through the said compartments, which are so arranged that each steam-traversed compartment is followed by an air-traversed compartment. The soya beans in their passage through the apparatus, first pass through a steam-traversed compartment, then through an air-traversed compartment, then again through a steam-traversed compartment and so on until, on completion of the treatment, they finally discharge from the vessel.

“Shortly before the completion of the treatment there is a substantial improvement in the taste of the soya beans. It is possible so to adjust the rate of passage of the soya beans through the apparatus that the beans discharge when the treatment is completed.

“It is advantageous to admix some ammonia with the steam in order to assist in preventing the heat-coagulation of the albuminous material.” Address: Dr., V. Tisza, Istvan Ucca 22, Budapest, Hungary.

• Summary: Oily or fatty vegetable products containing albums which are coagulated by the action of heat, e.g. soy beans or cereals, are improved by submitting the products alternately to the action of steam at a high temperature and a partial drying, until the substances having a disagreeable odor and the substances causing oxidation of the fatty materials are eliminated. The products may be cooled during each drying step and substances retardig or preventing coagulation of albums may be added. Thus, the products may be passed through a series of chambers, every second one being crossed by a current of steam at 100ºC and the others by a current of dry air at a lower temperature. Address: Resident of Hungary.

• Summary: This is a translation of Horvath 1927, “The Soybean as Human Food.” Address: Peking Union Medical College, China.

156. Leseberg & Kumlehn. 1932. Die Hausfrau kann lachen: Edel-Soja [The housewife can laugh: Edel-Soja] written on two faces. The text continues... “for she can significantly reduce her Kitchen expenditures while nourishing her family better than before.” Address: Weissekreuzstr. 37, Hannover [Germany]. Phone: 22713, 22714.

In this letter to the editor, the writer asks why, in the midst of this great Depression, are the British not fed soy milk? "A few years ago Dr. Laszlo Berczeller succeeded in producing from the soybean a digestible flour, both palatable and nutritive for the Western races." One table shows the chemical composition of Dr. Berczeller's flour compared with that of wheat, oatmeal and rye flour. His soy flour contains: 8.97% water, 41.50% protein, 20.36% fat, 3.92% ash, and 470 calories per 100 gm. "From these figures it will be seen that the soy flour contains about four times as much protein as the cereals and nearly twice as much fat as the legume flour."

A second table shows the cost of 2 lb of digestible protein in Germany in 1930 from various sources: Soybean, 8 pence [there are 12 pence per shilling]; beef, 15 shillings; eggs, 21 shillings; milk, 7 shillings and 6 pence; wheat flour, 4 shillings. The writer urges the national government to supply soy flour to the unemployed this winter. Address: Ashtead, Surrey.


159. Abadal, D. José; Soroa, José María de. 1932. Cultivo y aplicaciones de la soja [Cultivation and applications of the soybean]. Madrid: Patronato Central para la Protección de Animales y Plantas. 44 p. Illust. [Spa]

In summary: In this letter to the editor, the writer asks why, in the midst of this great Depression, are the British not being fed soybean milk. "A few years ago Dr. Laszlo Berczeller succeeded in producing from the soybean a digestible flour, both palatable and nutritive for the Western races." One table shows the chemical composition of Dr. Berczeller's flour compared with that of wheat, oatmeal and rye flour. His soy flour contains: 8.97% water, 41.50% protein, 20.36% fat, 3.92% ash, and 470 calories per 100 gm. "From these figures it will be seen that the soy flour contains about four times as much protein as the cereals and nearly twice as much fat as the legume flour."

A second table shows the cost of 2 lb of digestible protein in Germany in 1930 from various sources: Soybean, 8 pence [there are 12 pence per shilling]; beef, 15 shillings; eggs, 21 shillings; milk, 7 shillings and 6 pence; wheat flour, 4 shillings. The writer urges the national government to supply soy flour to the unemployed this winter. Address: Ashtead, Surrey.

As early as 1918 a Spanish public official, Don Julio de Palencia, the Spanish Consul in Shanghai, sent the State Department (Ministeria de Estado) a magnificent report specifying the great attention that representatives of the principal countries of the world were giving to this crop [the soybean], and the relevance that it would have in the agricultural economy of the future. What a pity that Spain has been the only civilized country to ignore the study of the soybean and its exploitation on a large scale" [p. 5].

"Finally we must make public our thanks to the spokesmen of this foundation/board (Patronato) for the special work they have done in writing this booklet: Don José María de Soroa, secretary of the Special School for Agricultural Engineers (Escuela Especial de Ingenieros Agrónomos), and Dr. Don José Abadal, chief of the Bureau for the Inspection of Pharmaceutical Services of the Ministry of War (Negociado de la Inspección de Servicios Farmaceuticos del Ministerio de la Guerra)" [p. 6].

"In 1917 the Spanish Consul in Shanghai, Don Julio Palencia, sent to the State Department a study on cultivation of soya, proposing that tests be done to acclimatize this valuable crop to our country.

"In Motril and later at the southern agricultural station of Malaga, the agricultural engineer D. Arsenio Rueda has been cultivating soya for the past 10 years [i.e. since 1923] in plots of 5 ares [1 are = 100 square meters], obtaining 60 liters (each liter weighing 780 gm) in each one.
“The white as well as the black varieties give good results, though the white ones do best. The seeds have been distributed to farmers who have noticed that, even though at first the goats that were given them as food rejected them, after a few days of getting used to this grain preferred them to such an extent that one must avoid growing this plant near the herd’s path lest the herd be attracted and devour it all.

“Although soya is a legume which draws many nutrients out of the soil (esquilmente), it has according to Mr. Rueda, sufficient interest since it allows usage of terrains where field beans cannot be used due to the invasion of the pest called Orobanche speciosa, commonly called ‘Jopo.’ This parasite does not attack soya...

“Besides the quoted trials, it has been more than 25 years since soya has been grown in Spain with success due to the interest and zeal that in their patriotic work, the agricultural engineer Mr. Eduardo Noriega undertook with his partner, Mr. Ortiz, on the farm of ‘Jerez.’

“He was successful during many years using the yellow and black varieties, later on also cultivating it in the Spanish central region.

“We think it useful also to state in writing the following data about soy grown by Dr. D. Jose Abadal in Lerida during the years of 1925-1926.

“The experiment was done only out of curiosity, with the intention of seeing if it could be grown in said province. Japanese seeds of the hirsute soy variety, yellow seed, used as food for diabetes, were used. The planting was done in a garden with seeds that had been soaked for ten hours, with no more care or fertilizers than those used for all the existing plants of that garden. The terrain of course was one of easy irrigation and located in Lerida where it is very hot all during the summer.

“This brief essay demonstrates that soy can be grown in irrigated terrain in very hot places and with little care.

“Fifteen years ago, the agricultural Engineer D. Jesus Andreu, in the province of Pontevedra [in the northwest corner of Spain, just north of Portugal, bordering the Atlantic ocean], did some tests with good results on growing soy as a forage plant.

“We also have news, though not concrete, of other successful tests done in the provinces of Madrid and Toledo.” Address: 1. T.C. Farmaceutico Militar; 2. Ingeniero Agronomo e Ingeniero Sanitario, Spain.


• Summary: Rapport du Dr. Berczeller, La Farine de Soja, rapport du Dr. Jean Freund. Introduction de Paul Otlet. Union des Associations internationales, Mundaneum, Publication no. 140. Address: PhD.


• Summary: “The present invention relates to a process for improving oily and fatty vegetable products containing heat-coagulable albumins.

“I have been able to prove that the keeping qualities of oily and fatty vegetable products containing heat-coagulable albumins may be considerably improved if certain substances, which accompany the said materials and are readily liable to oxidation, are removed by distillation. In this treatment it is necessary to raise the temperature as a result of which the heat-coagulable albumins contained therein are transformed from the lyophile colloidal state into the lyophebe state.

“It has now been discovered that by carrying out the distillation in an appropriate manner on the one hand, and by adjusting the water content and by influencing the other physical and chemical properties of the raw materials on the other hand, the above mentioned transformation may be very considerably diminished or completely prevented. This result is obtained according to this invention by subjecting the materials under treatment alternately and periodically to contact with steam, followed immediately by a partial drying process, the material being cooled, if desired, during the drying step. In this way the said materials, as well as undergoing a periodic change in temperature, suffer a periodic change in their water content.

“It has also been found to contribute to the success of the process to control the hydrogen ion concentration of the substrate during the treatment with steam and also to prevent the material as far as possible from swelling.

“In order still further to prevent the heat coagulation of the albumins it is also possible to use additions having an anti-coagulating effect.

“Example 1: Soya beans are heated in a dry state up to about 80 to 90°C. and are then conveyed through a double walled vessel which is subdivided into several compartments. Through the said compartments a current of steam and a current of dry air of about 40°C are passed in such a manner that each chamber through which steam is passes, is followed by a chamber charged with dry air. The soya beans are in this way alternately subjected to a wet heat treatment and to a dry treatment at raised temperature. The soya beans pass while travelling through the apparatus first through a steam chamber, thereafter through a chamber passed by an air current, then again through a steam chamber and so on till they are finally withdrawn from the vessel. The process is to be considered as complete, as soon as the disagreeable smelling substances and the substances causing the oxidation of the fatty material are removed. It is very easy to determine the end of the treatment by observing the radical change of taste in the raw materials. The speed of the soya beans which pass through the apparatus may be so adjusted that the beans leave the device exactly at the time
when the process of improvement is complete.

“It is advantageous to admix some ammonia with the steam; in order to assist in preventing the heat-coagulation of the albumins. An other substance suitable as addition is sugar.

“Example 2:...” Address: PhD, Vienna.


• Summary: “It is a great disadvantage, to the use of soya beans (either whole beans or parts thereof) in making articles of food in that they undergo a material change under the influence of air or oxygen, a change which is called ‘becoming rancid’. It is a well know fact that this oxidation process occurs with great rapidity in these materials.

“Thorough investigations have shown that the change produced by the oxidation will only occur if small quantities of certain substances are present which are very sensitive towards oxygen so that they will by the simple presence of air be oxidized at ordinary temperature (particularly if the material is very finely divided).

“By the said oxidation the substances become less volatile. These substances influenced by oxygen also play a very important role in the change of smell and taste of soya bean and its products, the said changes occurring at the same time as the products become rancid. These changes occur mainly in the material which, in the whole bean form the outer layers. I was able, to prove this fact by distilling the said material with steam; I was thus able to obtain an oily emulsion in the distillate which is very liable to change under the influence of air.

“Soya bean which is rich in fat, and also other parts of the soya bean plants and products derived therefrom, are especially liable to such unfavorable changes, more so than many other seeds.”

“Example 1: In a vessel which is preferably provided with a steam jacket and a stirring, rocking or shaking device, soya beans are loosely spread in layers and treated 40 to 50 minutes with steam which is either produced in the outer jacket or is introduced after having passed through the jacket through a tube carried by the cover of the vessel, is passed through the beans and is drawn off at the lower part of the vessel from below the beans. The introduction of steam into contact with the materials under treatment is preferably delayed until the contents of the vessel have reached a temperature of about 70°C. If the operation is carried out in this manner only small quantities of water are condensed on the walls of the vessel and on the beans.

“Soya beans treated in this manner do not show any signs of oxidation or deterioration, even if they are stored for a long time.”

Note: Neither the word “flour” nor the word “powder” appear in this patent. Address: PhD, Vienna.


• Summary: This is an excellent overview. Contents: Introduction: Soybean acreage in the USA in 1917 (50,000 acres) and 1931 (3,497,000 acres), production in bushels of seed for the top 22 states in 1931. Oil milling: Solvent or new process, hydraulic or old process, expeller method, the pioneering work of North Carolina (1916), Chicago Heights Oil Manufacturing Co. (1920), A.E. Staley Mfg. Co. (1922; starting with one expeller. Today capacity is over 1 million bushels/year), the Blish Milling Co. of Seymour and Crotersville, Indiana (1923; they crushed 317,000 pounds of soy beans in the 1927-28 season), current U.S. production of soy bean oil (13.5 million lb in 1930, up from 11 million lb in 1929), the problem of disposing of soy-bean oil meal. Soy bean oil for food. Lecithin. Bleaching properties (J.R. Short Milling Co. and Wytase). Soy beans for food: Use in China, Prof. L. Berczeller and soya flour, the Soyex Co. of Nutley, New Jersey. Glue: I.F. Laucks of Seattle, Washington (Research began in 1923 but the year “1926 proved to be the turning point in the life history of soy-bean glue”).

“The maintenance of the soy-bean milling industry at a high level of production is dependent upon the consumption of soy-bean oil meal. And heretofore, according to W.H. Eastman [president of the National Soy-bean Oil Manufacturers Association], this consumption has been disappointingly small, despite the fact that the meal has no superior as a protein concentrate.” The American livestock feeder “has not come to realize the value of the meal, nor to utilize its qualities to the same extent as the Danish farmer. In the year 1930 something over 100,000 tons of the meal were manufactured in this country [USA] from our domestic beans. Yet the little country of Denmark is consuming considerably more than we produce in the United States, while our milling industry is forced to store a good share of its production, unable to dispose of it... The demand for soy-bean cake is the limiting factor for the industry.”

“Soybean oil has certain properties which make it more valuable to the paint and varnish industries than it would be as a mere diluent for linseed oil. For instance, it is particularly well adapted for grinding pastes... Soybean oil further has the property of mitigating the after-yellowing of a white paint or enamel, and in this respect it is without a peer. The trade would pay a considerable premium over the price of linseed oil to obtain soy-bean oil for this purpose.”

“It is estimated that 75 per cent. of the soy-bean oil consumed in the United States is being used by paint and varnish industries and in the manufacture of linoleum, oilcloth, and artificial leather. Lesser quantities are utilized in printer’s ink and soap.”

Lecithin: “Up to the present time all the soy-bean lecithin used in this country [USA] is being imported from...
Germany and Denmark. The commercial product is a dark brown paste or heavy viscous liquid, containing about 60 to 70 per cent. of lecithin, the remainder being pure soya oil, coconu1 oil, etc... The margarine industry absorbs a considerable amount of this lipoid, as its incorporation overcomes many of the differences between butter and its substitute—e.g., it binds the water and prevents spitting when frying. Lecithin is of great interest in the chocolate and cocoa industry..." Discusses many applications of lecithin but does not give statistics concerning imports or domestic consumption /utilization.

"A new era dawned in the possibilities of the soy bean for food with the discovery in 1923 by Prof. L. Berczeller of the University of Vienna of a special process which eliminated the beany flavor from the soy bean and produced a nutty-tasting soy-bean flour capable of being stored for years without marked deterioration. Its principle consists in the subjection of the beans to the action of saturated steam for a short period of time, followed by vacuum distillation. It is to the credit of the Soyex Company that this process was brought over to the United States with the establishment in 1930 of a plant in Nutley, New Jersey. A high standard for soy-bean flour was established."

Soy-bean exhibit at the Chicago World’s Fair: “The soy-bean industry of the United States will be adequately represented at the 1933 Century of Progress’ exposition in Chicago in the Agricultural Division under the title Century Soy-bean Exhibit.’ On July 9, 1931, an organization meeting of representatives of the soy-bean industries was held in Chicago, where a committee was elected for the sections: producing, marketing, and utilization, the latter section being subdivided into human utilization, livestock utilization, the arts, paints and oils, and milling. The Century Soy-bean Exhibit’ is an excellent opportunity for the domestic soy-bean industries to display their products and it is undoubtedly going to stimulate further developments.

“Conclusions: As Henry Ford recently said, ‘The dinner table of the world is not a sufficient outlet for the farmer’s products; there must be found a wider market if agriculture is to be all that it is competent to become. And where is that market to be found if not in industry?... For several years we have been running large crops of everything from sunflowers to soy beans through our chemical laboratory, in an effort to find an annual market for the farmer’s produce. There can be no doubt that the soy bean is one of the most promising of all agricultural plants for an almost unlimited variety of industrial uses, and that it is going to play an outstanding role in the future economic life of this country.’”


(6) Plant making soy-bean adhesives (I.F. Laucks, Inc., Seattle, Washington). (7) Tank for adhesives (as high as the chin of a man standing next to it; Laucks).

Diagram: “Exploitation of the soy bean, according to the processes of Hansa Muehle G.m.b.H., Hamburg, Germany. Those derivatives representing products ready for sale are marked by circles.” The process uses solvent extraction. On the oil side: There is a “distillation” step before the crude oil, which is refined to make edible oil. Crude lecithin is refined to make finished lecithin. On the meal side: First step is removal of solvent and drying of meal. Then cooling by air to give finished meal. It undergoes grinding, milling and sifting to give grits, hull meal, and edible flour.

Note 2. A footnote on the first page states that Horvath is a “Special Associate Member of the National Soy-bean Oil Manufacturers Association. (P.O. Box 331, Oakland Station).”

Note 3. Talk with Bob at the Map Room of the University of Chicago. 1997. March 25. Oakland Station is probably in Chicago, Illinois. A railway map from the 1930s and a gazetteer from the 1920s show it to be a mail stop on the Illinois Central line at 39th Street. This is 39 blocks south of The Loop, right along Lake Michigan, south of the center of Chicago.

Note 4. This is the earliest document seen (March 2016) concerning soy lecithin industry and market information (all soy lecithin used in this country [USA] is being imported from Germany and Denmark). Address: Pittsburgh, Pennsylvania.

164. Pollak, J. 1933. Soy bean is a source of food and milk for diabetics. Industrial and Engineering Chemistry, News Edition 11(23):347. Dec. 10. Translated by W.L. Hill. • Summary: “The process worked out by L. Berczeller in Vienna for purifying the soy bean, which is known to be especially rich in protein and fat, has made possible the production of a soy bean meal [whole soy flour] that still shows the total fat and lecithin content of the bean and yet does not become rancid. Later, E. Kupelwieser [sic, Kupelwieser] in Vienna utilized and perfected this process on a technical scale.” By the addition of the necessary technical baking supplements to edible soy meal, a soybean bread has been produced in Austria. It contains only “one-fourth as much sugar-forming substance as normal bread. In taste and appearance this bread comes so near to ordinary whole-grain bread that it can scarcely be distinguished from it. Moreover,
there is the practical advantage that this new bread, now being manufactured for diabetics on a factory scale, is markedly cheaper than most of the baked products hitherto used by diabetics.

“Another old problem of the production of soy milk has also been worked out recently in Austria. By suitable preliminary treatment of soy beans, M. Adler has been able to produce a soy milk which is completely neutral to the taste and can scarcely be distinguished from cow's milk. Moreover, in chemical composition and physical properties it appears to be quite equal to animal milk. On account of its low cost this product could assume importance in the food-processing industries. The process is also probably suitable for the production of milk for diabetics.” Address: Vienna, Austria.


**Summary:** Debittered soybeans are a major part of the protein in the fermentation.

A Nazi swastika under the words “Deutsches Reich” appears at the top of the patent.

Note 1. The company is now named “New Edelsoja” (Neue Edelsoja...) and Dr. Berczeller’s name is not mentioned on the patent.

Note 2. This is the earliest document seen (May 2016) that mentions a company named “Neue Edelsoja...”


166. Torres Herrera, José M. 1934. El haba soya, su cultivo y beneficio [The soybean, its culture and benefits]. Boletin Agrícola (Medellin, Colombia) 8(189):1180-92. April. [Spa]

**Summary:** Contents: Introduction. Climatological conditions. Soils appropriate for this crop. Inoculation with bacteria. Preparation of the soil. Soya in crop rotations. Sowing the seeds. The work of cultivation. Calculation of the cost of production for 6,400 square meters (Data taken from the Palmira Agricultural Experiment Station, Bulletin No. 1; the cost is $0.45 per arroba = ca. 25 lb). Soybean varieties (“Agriculturists interested in planting this crop which has no equal, can obtain seeds free of charge from the Pamira [sic, Palmira] Agricultural Experiment Station or the Antioquia Agricultural Society [Sociedad Antioqueña de Agricultores, Colombia].”) Production of seeds. Yields of various varieties. Harvesting and threshing of the grain. The uses of soya (la soya).


Whole dry soybeans: Roasted soybeans (habas tostadas), soy coffee (café de soya), soy chocolate (chocolate de soya). Green-seeded soybeans (habas soyas verdes o legumbres): Soy sprouts, soy sauces. Edelsoya (soy flour made by Berczeller).

The value of soy forage. Soybeans in mixtures with other crops. Green manure. The concept of Dr. Uribe Echeverri, minister in Brazil.

Page 1180 states: “Climatological conditions. The soybean is suited to the temperate zones but it can become acclimatized to warmer climates and it has succeeded at the agricultural experiment stations of Valle de Cuaca and of Tolima and in various regions of the Intendencia del Chocó. It is probable that some varieties from England and from the north of Canada can acclimatize themselves in good conditions in our cold lands.

Note 1. This is the earliest document seen (May 2009) concerning soybeans in Colombia, or the cultivation of soybeans in Colombia. Note 2. No mention is made of soya in Nicaragua.

Note 3. This is the earliest Spanish-language document seen (Dec. 2012) that uses the term habas tostados to refer to soynuts.

Note 4 This is the earliest Spanish-language document seen (June 2009) that uses the term habas verdas to refer to green vegetable soybeans. Address: Agrónomo Nacional de la Intendencia del Chocó [Colombia].


**Summary:** Debittered soybeans are a major part of the protein in the fermentation.

The main patent began on 11 Feb. 1934.

Note: Soy is mentioned 13 times in this patent in the
calls for milled or otherwise issued 24 Aug. 1938. The main patent, 662,179, began on "Sojakernen" (soybean seeds). Address: Berlin, Germany. Laszlo Berczeller’s name is not mentioned on the patent. The company is now named "New Edelsoja" and Dr. Laszlo Reich” appears at the top of the patent. Note that the company name might well have existed as early as July 1934, which is when the patent application was filed. Address: Berlin, Germany.

• Summary: This is an addition to German patent 664,317 issued 24 Aug. 1938. The main patent, 662,179, began on 11 Feb. 1934. Debittered full-fat soy flour is used in the fermentation process.

Below the patent number is written in German: “The inventor has asked not to be named.”


Note 2. A Nazi swastika under the words “Deutsches Reich” appears at the top of the patent. Note that the company name is now named “New Edelsoja” and the Dr. Laszlo Berczeller’s name is not mentioned on the patent. Address: Berlin, Germany.

• Summary: This is an addition to Patent 662,179 which calls for milled or otherwise finely pulverized soybeans to promote alcoholic fermentation. A table shows how the promotional mixture leads to greater acidity at 42°C or at 48°C after 0, 3, 5, 24, and 48 hours. The main patent began on 11 Feb. 1934.

The company is now named “New Edelsoja” and Dr. Laszlo Berczeller’s name is not mentioned on the patent. Soy is mentioned 3 times in this patent in the forms “Sojabohnen” (soybeans), “Sojamehl” (soy flour), and “Sojakernen” (soybean seeds). Address: Berlin, Germany.

• Summary: The article begins with the following: “In previous editions of this bulletin we inserted various articles concerning the cultivation of soya; however, given the large importance of this legume, we decided to reprint this article by José M. Torres Herrera from the Boletín Agrícola of Medellín, Colombia” [April 1934. 8(189):1180-92]. The soybean variety Brazilian Yellow can be obtained in Sao Paulo for 10 cents gold at the most” (i.e., it is inexpensive).


Part II. Sowing the seeds. The work of cultivation. Calculation of the cost of production for 6,400 square meters (Data taken from the Palmira Agricultural Experiment Station, Bulletin No. 1; the cost is $0.45 per arroba = ca. 25 lb). Soybean varieties (“Agriculturists interested in planting this crop which has no equal, can obtain seeds free of charge from the Pamira [sic, Palmira] Agricultural Experiment Station or the Antioquia Agricultural Society [Sociedad Antioqueña de Agricultores, Colombia]”). Production of seeds. Yields of various varieties.


Note: No mention is made of soya in Nicaragua. Address: Agrónomo Nacional de la Intendencia del Chocó [Colombia].

171. Product Name: Soyan (Whole or Full-fat Soy Flour
Made by the Berczeller Process. May also be called Pure Soya Powder.

**Manufacturer’s Name:** Soya Food Products. Renamed Fearn Soya Foods Company by July 1936.

**Manufacturer’s Address:** Chicago, Illinois.

**Date of Introduction:** 1934

**New Product—Documentation:** Booklet. 1934? “Original Recipes for the Use of Soyan in the Household.” 16 p. 1% Soyan was said to improve ice creams.


*Summary:* This is an addition to Patent 664,317. The main patent began on 11 Feb. 1934.

The company is now named “New Edelsoja” and Dr. Laszlo Berczeller’s name is not mentioned on the patent.

Soy is mentioned 3 times in this patent, but only in the form “Sojabohnen” (soybeans). Address: Berlin, Germany.


“... The most expensive food constituents are minerals, vitamins, proteins, and fats. Soybeans flour rich in all of these food constituents and yet relatively cheap. The moderate cost of soybean flour makes it possible for people of small incomes to obtain the maximum of these essential nutritional constituents required by the body which in the form of other foods might be beyond their reach.”

“The first successful attempt to prepare a soybean flour which would be free from the disagreeable beany taste, which would remain fresh almost indefinitely (that is, not develop rancidity), and which would retain, practically unchanged, the original composition of the bean is described in the Berczeller patent (1924). This process consists in subjecting the cleaned soybeans to the action of saturated steam for 10 to 15 minutes. The beans are then dried, cracked in order to remove the hulls, and ground into flour. Such flour has a sweet, pleasant, nut-like taste (a characteristic of most flours obtained from soybeans which have been subjected to a special beany-taste removing treatment) and may be kept for many months without spoilage due to the development of rancidity. A later patent (1932) issued to this inventor consisted in subjecting soybeans (dry or soaked) to steam distillation (see also Berczeller, 1933). In making soybean flour by this process in this country, the beans used, generally the yellow variety, are first treated to destroy insects and insect eggs. The beans are then cleaned or freed from impurities, washed to remove the dirt, and subjected to the patented process. The beans are then dried and passed through cutting machines and the hulls are removed by aspirators and bolting machines. The cut beans are then aerated with warm air and ground in a special air-cooled mill, the fine flour being bolted through a special bolting machine” (p. 446).

Soybean oil mills in ten U.S. states now have a total annual crushing capacity of about 10 million bushels (p. 448).

Tables show: (1) Acreage, production, and average price per bushel of soybeans (1932-33, for 10 leading states and the USA total). (2) Annual soybean production, in bushels, in 5 countries (USA, Manchukuo, Chosen [Korea], Japan, Dutch East Indies, 1929-34). (3) Chemical composition of soybeans (minimum, maximum, and average). (4) Fat and protein content of soybeans grown in 15 different U.S. localities. (5) Mineral content of various legumes and grains (air-dry basis). (6) Composition of the component parts of soybeans (cotyledons, embryo, seed coat). (7) Composition of many soybean flours. (8) Composition of high fat, press cake, and solvent-extracted soybean flours. (9) Composition of solvent-extracted soybean flour and other legume flours (bean, pea, lentil). (10) Mineral content of selected foods, incl. soybean flour. (11) Composition of the mineral portion of grains and other seeds. (12) The composition and the mineral and vitamin content of selected foods. (13) Composition of selected foodstuffs. (14) Retail cost of foods and their components [soybean flour is by far the least expensive source of protein and calcium]. Formula and method for making soybean bread (using 20% soybean flour). Formula and method for making whole wheat bread. (15) Composition of representative flours. (16) Composition of representative types of bread. (17) Correlation of loaf...
volume and urease content of soybean flour used in making bread. Address: Food Research Div., Bureau of Chemistry and Soils, USDA.


• Summary: In the February issue of this periodical the author gave a short report on the success he had in feeding trials with nutritional yeast (Naerhefe) and Edelsoja flour (Edelsojamehl). Address: Univ. Prof., PhD, Vienna.


• Summary: A 1/3-page black-and-white ad. Use Edel-Soja, the tried and true pollen substitute which gives faster results.

Edel-Soja is a pure natural product, containing no added chemicals, which has long been made from soybeans (Soja-Frucht) grown in Austria.

Edel-Soja contains: 41% protein (of full biological value), 20% fat, 20% sugars, 3% lecithin (the characteristic component of egg yolks). Read about Edel-Soja in the following articles:


Edel-Soja can be purchased at two locations in Vienna, Austria. Address: Wipplingerstrasse 31, Vienna 1 [Austria].

Edel-Soja costs S. 1.50 [1.50 Austrian Schillings] per kg.

Note: Was Ladislaus Berczeller involved with this company? He established the brand name Edel-Soja for whole (full-fat) soy flour. Address: Wipplingerstrasse 31, Vienna 1 [Austria]. Phone: U-26-307.


• Summary: A 1/6-page black-and-white ad. Read about Edel-Soja in the following articles:


Edel-Soja can be purchased at two locations in Vienna, Austria. Address: Wipplingerstrasse 31, Vienna 1 [Austria].


• Summary: See next page. A comprehensive, early work on the soybean. Gray was a Scotch physician. Contents: 1. Introducing the soya bean. 2. The soya bean plant and its cultivation. 3. The soya bean as food: Dietetics, immature green beans, mature dried beans, soya bean coffee, soya bean chocolate, soya bean sprouts, soya bean milk, soya bean flour (incl. Berczeller flour, Soyvita bread made by Messrs. Wm. Beattie, Ltd., Glasgow), bean curd (tofu), soy (also called soya bean sauce, Chinese bean sauce, or shoyu), miso, fermented bean curd (p. 66-67). 4. Soya bean oil. 5. Soya bean trade. 6. The soya bean in agriculture.


In the chapter on “Soya bean oil” we read (p. 75): “In England, the bean oil trade is carried on by the following firms:—The British Oil and Cake Mills Ltd., the ordinary shares of which are held by Lever Bros., Ltd., so that they are a branch of Unilever, Ltd.

“The Hull Oil Manufacturing Co., Ltd., Hull, now merged in the foregoing concern.


The first addendum, titled “Soybean products exhibited by the American Soybean Association” (at Washington, DC, p. 120-24) lists the following companies and each of the soy products that they manufacture: American Lecithin Corp. (Atlanta, Georgia), Archer-Daniels-Midland Co. (Milwaukee, Wisconsin), Armstrong Paint and Varnish Works (Chicago, Illinois), Battle Creek [Food] Factory (Battle Creek, Michigan), The Blanton Co. (St. Louis, Missouri), Cereo
ALL ABOUT THE SOYA BEAN
IN AGRICULTURE, INDUSTRY
AND COMMERCE

BY GEO. DOUGLAS GRAY, M.D., C.B.E.,
Late Medical Officer to H.B.M. Legation, Peking, China
Lieut.-Colonel, Retired

WITH AN INTRODUCTORY CHAPTER
BY JAMES L. NORTH
Late Curator, Royal Botanic Gardens,
Regent's Park, London

LONDON
JOHN BALE, SONS & DANIELSSON, LTD.
83-91, GREAT TITCHFIELD STREET, W.1

1936

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Pollenersatz. Raschere Erzielung trachtstarker Voelker
[Edel-Soja: The tried and tested pollen substitute. Faster
achievement for people wanting high yields of honey (Ad)].
Bienenvater (Vienna, Austria) 69(3):112. March. [Ger]
• Summary: See next page. A full-page black-and-white ad.
Here’s how beekeepers judge Edel-Soja: The name, location
and testimonial of nine beekeepers is given. Edel-soja
contains: 41% protein, 20% fat, 3% sugars, plus lecithin (the
characteristic constituent of egg yolk).

Contact: Imkergenossenschaft (Beekeeper’s
Cooperative), Vienna 7, Seidengasse 32. Telephone: B-36-8-
63. H. Löscher, Klagenfurt, Burggasse 5.
Edel-Soja Sales Office (Verkaufsbüro), Vienna 1,
Falkestrasse 3. Telephone: R-22-0-84.
Edel-Soja sells for S. 1.50 per kg. Feeding instructions
are included with each packet.
Note: This is the largest ad for Eden-Soja seen in this
periodical. But it is not the earliest. Address: Falkestrasse 3,
Vienna 1 [Austria].

with soya beans. Letter to Dr. Charles H. Mayo, c/o Mayo
Brothers Sanitarium, Rochester, Minnesota, June 8. 1
p. Typed, without signature (carbon copy).
• Summary: “Dear Dr. Mayo: I was much interested
in your article in the Rotarian magazine, and more
especially in your reference to Soya beans. Since the
war I have been engaged principally in research work
on nutrition, and became particularly interested in the
Soya bean through my association with Dr. Berczeller
in Vienna, together with Professor Durig.
“Since then I have collaborated at various times
with Sir Arbuthnot Lane, Van Leersum, Plimmer,
Mellanby, Pritchard, and others, and in the U.S. with
late Lafayette B. Mendel, Horvath, and Dr. Le Clerc
of the food research division of the Department of
Agriculture at Washington, on the nutritional value of
the Soya bean.
“I find that in the U.S. much of the research work
has been done with a soya product made from the
residues of the oil-extracting mills, and the results
were often mis-leading on that account; the very
methods used in the extraction of the oil spoiled or
seriously impaired much of the food value originally
present, and another objection is that no attempt was
made to select the beans by varieties, and they vary
quite amazingly, especially in the Amino-Acid values
of the protein.
“In England I did a good deal of work on the oil
extracted type of flour made by the Hansa Muller [sic.
Muehle] Co. of Hamburg [Germany], but results were
not particularly encouraging until we tried the product
made by the Berczeller process, when a quite different
story was unfolded, and all interested became very
elated with the tests we made.
“Briefly I am of opinion that extracted soya should be
used for cattle feeds and commercial uses, but for foods,
none of the essentials should be removed from the bean,
except of course the husk.”

Dr. Fearn’s company now sells Soy-O cereal, a cooked
cereal “made with a special type of wheat plus the Soya
product” [full-fat soy flour]. He closes: “With apologies for
the long screed. Believe me. Yours Very Truly... Late Royal
Army Medical Corps (Eng).” Note 1. The last word probably
stands for “England” rather than “Engineers.”

Note 2. As of March 2000, British Army records are kept
in two locations in England: For those persons discharged
before 1914 contact: Keeper of Public Records, Public
Record Office, Ruskin Ave., Kew, Surrey, TW9 4DU, UK.
For those discharged in 1914 of after contact: Ministry of
Defense, CS(RM)2B, Bourne Ave., Hayes, Middlesex, UB3
1RF, UK. Address: M.D., Fearn Soya Foods Co., 355 West
Ontario St., Chicago, Illinois.

LASZLO BERCZELLER (1890-1955) 73

EDEL-SOJA

der erprobte Pollenersatz
Raschere Erzielung trachtstarker Völker

So urteilen Imker über Edel-Soja:

Herr Oberlehrer G. Probst, Hochberg: „Habe an 4 Stücke 1½ kg verfüttert, wurde begehrig aufgenommen, so lange nicht Pollen in der Natur in größeren Mengen vorhanden. Sehr zufrieden.“

Herr R. Schneeberger, Lindach: „Habe 20 kg pro Stock gegeben, wurde sehr gerne aufgenommen. Habe auch für andere Mitglieder der Ortsgruppe bestellt, und wurden auch diese Imker mit demselben Erfolg überrascht.“

Herr Omm. J. Ebergaßner, Taufkirchen: „Gab jeden Tag einen Chlössel. Die Stücke wurden frisch und stark.“

Herr J. Mandorfer, Waldneukirchen: „Habe für meine 6 Böller 1 kg Edel-Soja verfüttert. Es wurde sehr gerne genommen. Die Entwicklung war großartig. Ich werde es weiter bestellen und jedem Imker empfehlen.“

Herr R. Klingelmaier, Thannstetten: „Von meinen 10 Böllern wurden 2 nicht gefüttert, die anderen 8 erhielten 1 kg. Die gefütterten Stücke entwickelten sich schneller als die anderen. Bin sehr zufrieden, werde wieder bestellen.“

Herr J. Neubauer, Grieskirchen: „Brutenischlag stärker als sonst um diese Zeit. Entwicklung der Böller günstig beeinflusst.“

Herr Förster M. Hirsch, Freudenthal: „Wird großartig angenommen. Meine schwachen Böller sind großartig emporgestoßen.“

Herr J. Jantos, St. Leonhard: „Bessere Flugtätigkeit und schneller Entwicklung.“

Herr A. Fischer, Schwarzenberg: „Annahme gern und sehr schnelle Brutvermehrung.“

Edel-Soja enthält: 41% Eiweiß (biologisch vollwertig), 20% Fett, 20% Zuckeraarten, 3% Beizlin, den charakteristischen Bestandteil des Eidoliers.

Imkergenossenschaft, Wien 7., Seidengasse 32
Telephon R-36-8-63 — G. Lüscher, Klagenfurt, Burggasse 5.
Edel-Soja-Verkaufsburo, Wien 1., Falkenstraße 3
Telephon R-22-0-84.

Edel-Soja kostet 5150 pro kg, Fütterungsanweisung liegt dem Paket bei.

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13.  
• **Summary:** The writer acknowledges the nutritional deficiencies of white bread then goes on to state: “May I enter a plea for closer consideration of the benefits which can be gained from adding 20 per cent. flour milled from soy beans to 80 per cent. wheat flour? This mixture possesses all the physiological characteristics of dark whole-meal flour, and bread made from it surpasses the nutritive value of bread made from whole wheat as well as being more palatable and tasty. These qualities are due to the large amount of soya protein (glycinin), which is a complete protein containing all the essential amino-acids necessary for the building up of proteins of the human organism. In the above proportions of soya flour with white flour the protein of ordinary bread is increased by over 60 per cent.” Soy flour is also a good source of vitamins A and B, and of lecithin.

“The ash of soya is alkaline while that of cereals is acid; the ash is rich in phosphorus, calcium, and magnesium. Because of this alkaline value, soya flour is especially useful in combating the fatigue of muscular exertion, and herein lies the Oriental’s ability to do a long day’s work at low cost. The yield of protein pound for pound is more than twice that of beefsteak; four times that of eggs, wheat, and cereals; twice that of lima beans; and twelve times that of milk.

“The soya flour most commonly used in England is made in accordance with the formula of Professor Berczeller of Vienna [Austria]... The widespread use of soya food in Japan and China down the ages, and the example of other countries that consume it in annually increasing quantity, are factors that should lead us to a better appreciation of the high nutritional qualities of this legume.” Address: Edinburgh [Scotland; M.D., Scotch physician].

• **Summary:** Mentions Edelsoja, Th. Weippel of Illustr. Blaeter für Bienenzucht, Prof. Schiller of Bienenvater; and kapitan Funk, related to 1936. Address: Vrbcany, Czechoslovakia.

• **Summary:** Dr. G. Douglas Gray, a Scotch physitian, argued recently in the British Medical Journal that British bread should be made from 20% soybean flour and 80% whole wheat flour. The mixture contains 60% more protein than ordinary bread. “The ash of the soybean is alkaline, which that of cereals is acid. The ash is also rich in phosphorus, calcium, and magnesium. This alkaline value aids in combating the fatigue of muscular exertion, and herein lies the ability of the Oriental to do a long day’s work at small cost.”

“The soybean flour commonly sold in England is made in accordance with the formula of Professor Berczeller, of Vienna [Austria]. In this process the objectionable flavor of the bean is removed by chemical solvents. This is objectionable for the reason that chemical solvents are likely to impair the nutritive qualities of the bean by removing useful elements. Processes devised and used in this country are not open to this objection, the use of chemical products being avoided.”

• **Summary:** Using debittered, defatted soybean meal or flour. Below the patent number is written in German: “Der Erfinder hat beantragt, nicht genannt zu werden.”

Note 1. Soy is mentioned 9 times in this patent in the forms “Sojabohnen” (soybeans) and “Sojaextrakt” (soy extract).

Note 2. A Nazi swastika under the words “Deutsches Reich” appears at the top of the patent. Note that the company is now named “New Edelsoja” and that Dr. Laszlo Berczeller’s name is not mentioned on the patent. Address: Berlin, Germany.

• **Summary:** This is an addition to Patent 697,424. The main patent began on 13 Sept. 1938. “The inventor has asked not to be named” (Der Erfinder hat beantragt, nicht genannt zu werden).

Note: The company is now named “New Edelsoja” and Dr. Laszlo Berczeller’s name is not mentioned in the patent. Soy is mentioned 5 times in this patent in the forms “Sojabohnen” (soybeans) and “Sojabohnenextrakten” (soybean extracts). Address: Berlin, Germany.

• **Summary:** A very useful bibliography of 34 references on this subject. Address: Food Research Division, Bureau of Chemistry and Soils, USDA; Washington, DC.

• **Summary:** Adaptations of soybeans to Western food
habits are discussed in detail. Page 89 mentions efforts to commercialize and popularize the use of soy flour (Sojamehl), for example the little Edelsoja Cookbook from the New Edelsoja Co. in Berlin (das kleine Edelsoja-Kochbuch der Neuen Edelsoja-Gesellschaft in Berlin) and the Edelsoja Cookbook from the Edel Soja Workshop in Lübeck (das Edelsoja-Kochbuch des Edel-Soja-Praktikums in Lübeck). Address: Oberregierungsrat und Mitglied des Reichsgesundheitsamts i. R., Wilhelmshoer Strasse 3, Berlin-Friedenau, Germany.


- **Summary:** For a good summary of the translation of this important German Army book, see Soybean Digest (Dec. 1941, p. 2-6). The translation was done by H.V. Johnson in 1941. Address: Germany.


- **Summary:** Continued: Austria (page 336) As is well known, in the middle of March of 1938 there was a great deal of political tension in Central Europe brought on by Austria’s Anschluss [annexation by Germany]. In the middle of my first visit to Vienna (March 8-10), there was still autonomy. When I returned from Romania on March 20th, Austria was part of Germany.

For soy growing, it seems that certain parts of Austria, Burgenland in particular, have more climatically favorable conditions than Germany. As far as we know, the area planted with soybeans is still relatively small (in 1937 it was estimated to be up to roughly 700 ha), but cultivation will probably increase considerably.

Successful soybean growing has been done for a long time by Samenzüchterei Franz Anton Brillmayer, Platt, Zellerndorf, in Lower Austria. Planting is done in cooperation with the Bundesanstalt für Pflanzenbau und Samenprüfung in Vienna, where Dr. Fritz Drahorad is a specialist. I did not pay a visit to Platt, since at the time of year in question there was very little to see. Instead I looked up Dr. Drahorad in Vienna and from him was able to get a good glimpse at the methods used and their results.

In all, about 80 different testing sites have been used for soy experiments. These sites are located at widely varying elevations, including up to 1,100 meters above sea level. Because of the soybean’s relatively good frost resistance, harvests of 800-2,600 kg/ha of mature beans have been obtained at elevations of up to 800-1,000 meters above sea level. On average, a per-hectare harvest in Austria is generally 1,800-2,500 kg. In the most favorable locations, planting is done at the end of April, otherwise it is generally done at the beginning of May. Harvesting usually takes places during the latter half of September.

The Drahorad-Brillmayer soy varieties have also achieved a wide distribution outside of Austria, even if in our own minds they could be described as being fairly late. The “Delitzscher Schwarze” is thus grown at Platt and is identical to the “Platter Schwartzes SS427”. This has nearly average time to maturation, with 110-120 days vegetation time in Austria, during which time “Platter Gelbe Riesen” matures a full 10 days later.

Regarding breeding methodology, Dr. Drahorad believed crossbreeding to be time-consuming and difficult. He primarily uses natural selection (sowing populations in more or less exposed areas, especially in the mountains). He then visits these places (about 30 in all) in the fall, equipped with a “backpack laboratory” and performs the necessary analyses out in the field. Like most other soy growers, Dr. Drahorad emphasized the importance of the length of the day. Among other things, he studied some Manchurian material, covering some 90 lines, which all however proved to be shorter-day varieties. For Swedish conditions, where the summer days are particularly long, he believed that people should try to plant varieties that can be sown as early as possible so that during their earliest stages of development they are exposed to the shorter day lengths of spring.

Among the different appearing varieties at Platt, there is a rather wide variation in fat and protein contents. Certain lines exhibit as much as 25% fat and 43% protein.

Silage soybeans (silosoja) are also grown in Austria with rather decent results. Platter Gelbe Riesen is used mostly for this. New special stems have now been grown that can reach a height of 175 cm, providing an abundance of green fodder. The harvesting of silage soybeans should be done when the seeds reach the size of a grain of rice, since at that time there will be a minimum of leaf loss.

Domestic soy paid 38-43 Austrian schillings during the winter of 1937-1938. Two production facilities for the processing of meal and other soy products (sojaprodukter) for human consumption operate in Austria, namely Sojaöl- und Sojamehl-Fabrik Dr. Winkler & Co., Vienna, and Edelsoja-Werke in Schwechat, outside of Vienna.

During my stay to Vienna, I also paid a visit to the soy plant operated by Dr. Winkler. The raw material, which is Austrian soy but only of the yellow-seed variety, generally contains about 15% water. The first procedure is soaking in warm water, whereby the bitter substances (glycosides) that soybeans contain are removed. Without this process, the soy cannot be used for human consumption. Afterwards, the beans are hulled, dried and broken up. Hydraulic presses are
used for oil production. The mechanical equipment clearly appeared to be modern, including milling machinery, sifters, etc.

Hungary (p. 338): In contrast to the surrounding countries, soybean growing has not really taken off in Hungary. Growing is done by professor K. Kolbai of Keszthely, as well as at experimental facilities in Magyarovár and Szeged, but not to a very great extent. Previously, Dr. R. Fleischmann of the Königliche Ungarische Pflanzenzuchtstätte in Kompolt, also worked with soy, but has now focused his attention to hemp and other textile plants, as well as corn. Of these growers mentioned, I only visited Dr. Fleischmann. Generally speaking, it seems that about a 38-39% protein content and a roughly 17% fat content appear in Hungary, where the Brillmayer and Kleine Gelbe Ungariasche are the most commonly grown varieties. In the drier regions, soy is generally not successful, and instead is of interest for more humid zones.

With regard to hemp, Dr. Fleischmann observed a very strong photoperiodic reaction capability. Hemp (in this case the Southern European variety), like soy, is a typical short-day crop.

Translated by Thor Truelson of Minneapolis.
Summary in Herbage Abstracts (March 1940, p. 25).


• Summary: Continued. Etymology: For “okara” Matagrin says Pulpe residuaire de la preparation du lait de soja.

Dr. Bloch showed okara contained 88.75% water. Beltzer gave a microscopic analysis. Mlle. Castet, in tests with okara in 1918 in Algiers, added sugar and cooked for at least one hour to get something like an almond paste, which she used in patisserie. Also in 1918 Holmes of the USA used dried okara in biscuits. Since then many recipes have appeared in America. Souffle, Salad with apples, Sandwich filling, etc.

Koenig did two analyses of miso, not stated when.

Matagrin gave many detailed descriptions of process for making various soyfoods by various authors in many countries.

Chinese Yeast, Kiu-tsee. This product, described by Daby de Thiersant, according to the practice in Kwantung. Lots on soy flour; processes and recipes.

Berczeller carried on the work of Haberlandt in Central Europe. But did Berczeller know of Haberlandt?

Lecerf made bread entirely from soy flour and Bourdin, of Reims, made “soy gluten” bread rich in carbohydrates. Heudebert made dietetic products from soy flour. Breads for diabetics were made by Menudier (1890), Bloch, Labbe, Dujardin-Beaumetz, Martinet, Cazalis, Le Goff, etc.

By 1930 solvent extractors were processing 1,000 tonnes/day. The great oil mills of Hamburg-Harburg were processing up to 1,200 tons per 24 hours. A system consumes 5.5 tonnes of steam and 30 kwh of power per ton of soybeans.

At the Ford Motor Co., the Flumerfelt continuous extractor, inspired clearly by that of Ford (the former = U.S. Patent 1,920,499 of 1 Aug. 1933.) with a screw in a tube. For the Ford system it required only 1 man to process 1,800 kg in 8 hours. Remarkable! The Ford extractor is very economical and all manual. Ford hopes it can be sold for about $3,000.

Soy oil as food: In Haberlandt, C. Berndt submitted to pressure Chinese soybeans, which he had obtained from Japan and which also served as the first European analysis of soybean samples, due to Steuf. Without ignoring the eventual industrial interest, in this oil, Berndt was interested in food uses. He said: “And I have also found a large proportion of oil in the cake, the pressing having been insufficient. I had a fried food / fritter (friture) prepared with the oil and found not the least after taste.” Better to translate directly from German. The experiment was not decisive. Nutritive properties of soy oil: Some (Dr. Petit among others) say soy oil is purgative. Kaempfer noted well in 1690 the medicinal use of black, dwarf? soybeans as an antiasthmatic powder.

At Nutrition: Dr. Bloch showed that consumption of 100 gm of this oil causes no laxative effect. but rather a mechanical effect that lubricates the intestines.

The abundance of olive oil in France has led to limited adoption of soy oil.

As cottonseed declined, soy oil gradually replaced it. Is the decline of cotton related to synthetic fabrics or only to the boll weevil?

Soy oil is most widely used in soaps in the USA and USSR where cotton oil use is dropping and imports of palm oil and coconut oil are large; they do not use soy oil alone. Is it usually or often hydrogenated?

Tests on destructive distillation of soy oil started in Japan. In 1920-21 S. Satow formed a calcium soap with soy oil and submitted it to the usual procedure for cracking, obtained below 150°C various fractions’ 20% light oil; 150-300°C 60% kerosene type oil; 300-330°C heavy petrol fraction.

Artificial rubber: In about 1915 Grosse and Sauer in Germany developed a process for making artificial rubber from soy oil. In 1921 a Canadian process was developed (W.G. Wright, British patent 142,416).

Various processes for making plastics with soy flour. In 1920 Hager in Portland, Oregon, developed and patented (British patent No. 140,781) a process for making a charge, for bandages, and rubber from soy flour.

The Ford Motor Co. uses annually in making its cars 2,500 kiloliters of soy oil (of which about 1,625 kl for paint and enamel and the rest for foundry cores) and will also

In Japan in 1938 many of the big companies such as Nippon Denko Kaisha, Allied Showa Industry, Japan Oil and Fats, Hohnen Oil, and Bean Chemical Industry, are starting to make soy casein (caseine de soja; p. 336.8).

Li Yu-ying who, at least, would point out “Sojalithe,” soy glue, the fabrication of isolates (isolants) as applications of vegetable protein (p. 337). Preparation of vegetable casein (etymology). Beltzer wrote voluminously on this subject. So he may have preceded Li Yu-ying.

Page 342: Process of H. Beaufour, 1929 French patent

He may have preceded Li Yu-ying. Beltzer wrote voluminously on this subject. So he may have preceded Li Yu-ying.

Lots being done by 1939 with isolates for industrial sizing and to plywood glues. The rest is going to paints or whitewash.

Soy cellulose for artificial silk.


Serious explosions in the USA with soy oil extraction. In Chicago on 7 Oct. 1935, 11 workers were killed and 55 injured at the Glidden plant, while material damage was estimated at $600,000. Two months later an explosion of the same type in an extraction plant at Momence, Illinois, took four victims, killing 2!

Li Yu-ying was right in his vision for starting a soy processing industry in France at Caseo Sojaïne. He threatened many commercial industries, arousing the hostility of the dairies.

This is a remarkable, fine, complete detailed book, covering on all aspects of soy. Address: France.


• Summary: “From a correspondent. Since the war began there have been frequent references in the Press to soya beans, mainly in relation to the Trans-Siberian railway transport of raw materials to Germany and the so-called ‘Nazi food pills.’ Few people noticing these references will have appreciated the extent to which Germany is now making use of the soya and the importance of the part it plays both in the Nazi food economy and in the general economic structure of the Reich. The soya has become vitally important to Germany from the food, the economic, and the military standpoints.”

“It has been described as ‘unquestionably the most important food plant in the world.’ Its chief economic importance lies in an oil with various industrial applications and in a special flour... But it has also a multitude of industrial applications. With good reason the Germans have called the soya ‘the magic bean’.

Note the use of the term “magic bean” in the title to describe the soybean.

“A substitute for meat: As for the food aspect, one of the greatest weaknesses of Germany is the relative lack of foodstuffs of animal origin (meat, milk, eggs). The Germans are facing this weakness by developing from the soya a flour called Edelsoja, which, because of its high content of good proteins (40 to 45 per cent.) and of fats and carbohydrates, can completely replace meat or the other animal foodstuffs. This flour is introduced in the traditional prepared foods and culinary dishes (soups, sausages, bread, biscuits, macaroni) in such a way that the taste is unimpaired, the protein content.
greatly increased, and through a daily arrangement of diet the individual receives, without reliance on meat, the minimum ration of proteins, fats, and mineral salts indispensable for human nutrition. This soya flour is not an *Ersatz*, not a ‘food pill,’ but a new and superior foodstuff with the experience of centuries in the Far East to confirm its nutritive value. We cannot afford to smile indulgently on German efforts to develop its consumption. The United States cannot be called a starving country, yet, according to official figures, the Americans produce and consume over 300,000 tons of soya flour annually and more than forty concerns there are manufacturing soya flour and soya food products. In Germany the beans are also used for the production of margarine, soya oil being the basis of the product. In 1937 the Rumanian production was estimated at 200,000 tons; soya beans are being imported into Germany from countries like Rumania, Bulgaria, Yugoslavia, and Hungary, by barter.

“Germany built up huge reserves of soya beans in view of the war. It is believed that these amounted to 2,000,000 tons, sufficient to provide the whole German population with the equivalents of animal food for five months.” Soya beans can be imported into Germany from countries like Rumania, Bulgaria, Yugoslavia, and Hungary, by barter.

“The military aspect: The military importance of the soya is due as much to the food products as to the explosives and other war chemicals which can be manufactured from it. The flour and prepared products are the ideal military foods, and are now an established part of the German Army’s war-time diet... The German soldier can easily carry in his haversack a three-day ration... At the end of the Polish campaign Nazi official circles were boasting in Berlin, that without the soya it would not have been possible for the German Army to advance so quickly as it had done.

“Germany has always been the largest soya importing country in the world. From 1928 to 1933 she imported over 1,000,000 tons annually, according to official figures, but these dropped to about 500,000 tons in 1935-36 and then rose to 800,000 tons in 1938, and 500,000 tons for the first six months of 1939. The greater part of these imports came from Manchuria, but in 1937 and 1938 about 50,000 tons are said to have been admitted annually from Rumania. It seems clear, however, that the figure for Rumania cannot be correct. In 1937 the Rumanian production was estimated at 150,000 to 250,000 tons. No soya is retained by Rumania; it is known to be all exported to Germany. From this it would follow that the German import figures deliberately understated the true position. As long ago as 1933 the Germans realized that dependence on Manchurian soya, which was almost entirely brought by sea to German ports, would be dangerous in time of war and that reliance on Trans-Siberian railway consignments, even assuming Russia to be *bienveillant* [benevolent, friendly], would be precarious. For this reason immediately Hitler came into power the Germans took steps to develop the production of the soya in Rumania and other Balkan countries. The large chemical group I.G. Farben Industrie, with the full support and encouragement of the Reich Government, began preparations in 1933 to promote the cultivation of the soya in Rumania. Thousands of tons of seed were taken into the country. A Rumanian company, the Soja S.A.R., was incorporated with German capital for producing and trading in the beans. The company provided the Rumanian peasants with seed and bacteria; it made the necessary advances against future delivery; and it looked after technical instruction in soya cultivation. Its activities reached into almost every village in those districts where production was possible. Further, by guaranteeing a minimum purchase price to the peasant, the company encouraged him to concentrate on soya rather than on the more uncertain maize or wheat which market fluctuations made less profitable.

“In Germany itself a subsidiary company, the Deutsche Olsaat Verwertungs, was set up to import from Rumania. Payments for the soya were to be effected within the ambit of a clearing system, and by virtue of this arrangement, *inter alia* [among other things], the I.G. Farben Industrie was to export its chemical and other industrial products in return. As the price paid to the peasants amounted to only 60 per cent. of the export price, the result of this ingeniously planned system was to provide Germany with secure and accessible source of supply on the cheapest possible terms, and without risk of losing foreign exchange. A similar story may be told in regard to Bulgaria. In 1934 two companies with German capital were set up there, having the same range of activities as the Rumanian. A clearing system to pay for the soya was likewise developed, and minimum prices guaranteed to the peasant. In Yugoslavia also efforts were made by the Germans to encourage production, but the possibilities there were less favourable in view of transport difficulties.

“Silos in Austria: Precise figures are difficult to obtain of the quantity of soya produced in the Balkans under German promotion. The largest production is certainly in Rumania, and must certainly have greatly increased since 1937. In the autumn of last year [1939], it was reported on good authority that Germany had appropriated 5,000 railway wagons for the transport of soya from Rumania; and that in addition 200 barges were waiting at the port of Braila to pick up soya beans. Large silos have been constructed in Austria for the storage of the soya as it comes up from the Balkans by rail or by the Danube. It is probable that an estimate of 500,000 tons for the annual Rumanian production would not be an outside figure. Latest reports say that production is still further to be increased. The most recent development is the creation of a new Germano-Rumanian company to operate from February 1 of this year [1940], its object being expressly to increase production in Rumania. Apart from Rumania, efforts are now being made by the Germans to promote soya cultivation in Hungary.

“As we have said, Russian and Trans-Siberian railway transport is precarious in any event. It is estimated that with
the present railway material 500,000 tons of soya at most could be carried annually from Manchuria across Siberia, and the cost of the product when it reached Germany would be almost prohibitive. So far as is known, little or no soya has come during the war by the Trans-Siberian route. Germany cannot afford to lose her soya supplies, from whatever quarter they come. The soya has become for the Germans a vital sinew of the ‘total war’ which they have conceived, prepared, and developed."

Note 2. This is the earliest English-language document seen (March 2003) with the term “soya food” in the title.

Note 3. This is the earliest document seen (March 2003) that describes the use of government policies (guaranteed minimum prices) to promote soybean production.

Note 4. This is the earliest document seen (Jan. 2009) that gives soybean production or area statistics for western Europe.


**Summary:** The soya bean is “the richest in food value of all vegetable substances. It assimilates more nitrogen from the air and extracts its sustenance from the air with greater economy than any other plant. It contains more nitrogenous matter than beef-steak.” Soya bean flour contains 40% protein, 20% fat and 20% carbohydrate.

The soya bean has been used as a food in China for thousands of years, but Europeans “have only recently become aware of it. Germany imported 800 tons of it in 1908, 80,000 tons in 1923, and 800,000 tons in 1928. Since then they have laid up vast reserves by encouraging its cultivation in Rumania and Bulgaria. Its flour [Edelsoya, rich in iron] feeds their soldiers and its oil feeds their machines.”

After the German invasion of Poland [which began on 1 Sept. 1939], German officers in Berlin were boasting that without soya, the German army would not have been able to advance so rapidly.

Dr. Helen Mackay has been working with soybeans in the UK in the field of pediatrics (Footnote: *Archives of Disease in Childhood*, 1940, p. 1). “She has fed 48 babies on a milk made from equal parts of soya flour and dried milk powder,” and she has found that despite minor disadvantages “this mixture may be an inexpensive and efficient substitute for breast milk or cow’s milk.”


**Summary:** The section titled “War and the soya bean” notes that several days ago Eugen Kovacs, the *New York Times*’ correspondent in Bucharest [Romania], cabled that the invasion and capture of Bessarabia [in Romania] by the Russians threatened Germany’s supply of soya beans. “‘The magic bean’ the Germans call the soya.” It is one of Germany’s major sources of protein and oil. Germans who are able to get a flour named Edelsoja (which contains 20-45% protein) use it as a key source of protein and fats in soups, sausages, bread, and noodles. In the USA about 300,000 tons of soya flour are consumed.

Nobody knows how large German stockpiles of soya beans are. In 1935-36 Germany imported about 500,000 tons of soya beans, increasing to 800,000 tons by 1938, and 500,000 tons in the first 6 months of 1939.

Most of these supplies came from Manchuria. Since the Trans-Siberian Railway could not be relied on and transportation costs were high, in 1933 the Germans began to finance cultivation of soya beans in Rumania. Kovacs says that German firms had contracted in advance for crops of soya beans grown on about a million acres in Bessarabia and had paid down two billion lei or $10,000,000. Similar measures were taken in Bulgaria and Yugoslavia. Some say German stockpiles of soya may be 2 million tons—enough to last 80 million people about 5 months. “At the end of the Polish campaign there were boasts that soya food proved to be as important as cannon.”


**Summary:** “Following the defeat of Poland, the world discovered that one of Hitler’s secret weapons was hidden in the rations of his soldiers. The use of the ‘magic bean’ enabled the German troops to advance very quickly because of the fact that by using soy beans in food preparations the soldier is able to carry three days supply in his haversack. “We are informed that Germany has manufactured an excellent flour from soy beans called Edelsoja, which it is claimed can replace meat or other similar foods.”

“There should be ample space in Australia for the production of this beans on a very much larger scale than has yet been attempted. Private persons have demonstrated that this bean can be grown in Australian kitchen gardens without much trouble, and with considerable profit. With surplus stocks of wheat mounting high in Australia, and with the dwindling stock of soy beans due to war conditions, the local cultivation of this ‘magic bean,’ which originated in the East but is now very much in the West, should be encouraged.

“The diet of the future will be less in the direction of flesh foods and more in the way of a sound health regime, judging from the general trend in the world of dietetics just now.—Contributed.”

Note: A similar article titled “A vital German supply—The magic bean—Soya food for man & beast” appeared 4 months earlier in the *Times* (London; 23 April, p. 7f, 8a).

Summary: “A new method of utilizing soya beans, which has been practiced for about 15 years in Germany as well as in other countries, is of the utmost importance in the effort to use soya beans not only for their oil content but for their entire nutritive value. The soya bean by simple cooking methods cannot be prepared in a way acceptable to European taste. That is why scientists such as Berczeller, Kupelwieser and others, devised the methods of milling and extracting the bitter substance from the soya bean in its original condition. The yellow flour which results from this process contains about 40 per cent protein, 20 per cent fat (1 to 3 per cent lecithin), 27 per cent carbohydrates, 5 per cent ash and 8 per cent water. This flour is called full soya or pure soya [Edelsoya].

“This soya bean flour has no affinity with ordinary cereal flours. It differs from them both in its chemical composition... and in its baking properties (grain flour has a high gluten content, full soya has no gluten at all).”

“Full soya is used only as an ingredient for the nutritive improvement of various foodstuffs and dishes, and is never used exclusively for the preparation of a dish. Soya flour is a vegetable product and, therefore, costs much less than the livestock products which it replaces.

“These considerations and experiences are being made full use of by the fighting forces. The discoveries in regard to the utilization of full soya flour have been partly made by men in the supply services of the army. The utilization of soya bean flour in our army is particularly important in view of the fact that soya bean production has a secure basis within Germany’s reach. The army, in conjunction with the Ministry of Agriculture, has actively promoted domestic soya bean growing within the frontiers of previous Germany, in Austria, and more recently also in the Polish districts. Moreover, soya bean growing by the German Dye Trust in Balkan countries, particularly Rumania, has assured a current supply which by far exceeds the largest possible requirements of the fighting forces.”

Dr. Ziegelmayer has discussed the reasons for the army’s preference for full soya. “Full soya has already been used before the war in the field kitchens. In September, 1938, a collection of 262 recipes for field kitchens was issued. The utilization of full soya in the field kitchens has made it possible to economize in various ways. In the case of minced meat dishes, there was a saving of 25 per cent of the quantity of meat previously used, although the meat portions were increased from 25 to 45 per cent. Furthermore, eggs have been largely replaced by full soya bean flour. Milk in the preparation of dishes is largely being replaced by a mixture of 1 to 10 full soya bean flour and water.” It is possible to save about 40% of the fat in liquid dishes by adding soya bean flour.

“In the case of industrially produced foodstuffs, the army authorities have ordered the utilization of full soya, particularly in the case of tinned soup. Soya bean flour is also used for mixed cocoa drinks, biscuits, and chocolate. Additions are also made in the case of tinned liver sausage, etc.”

Note: This is the earliest English-language document seen (Nov. 2013) that uses the term “full soya flour” or “full soya” to refer to “whole soy flour.”


Summary: “Much credit is given to a soybean flour, ‘Edelsoja,’ which has a protein content of from 40 to 45 per cent and is added to soups, bread, pastry, and macaroni.” The ingredients of German “Pemmican” include smoked meat, soybean flour, plus various fried fruits, vegetables, etc. A large photo shows German soldiers marching toward the Arc de Triomphe in Paris.


Summary: Discusses: The nutritional composition of the soybean. The Chinese emperor, Shen Nung, who introduced the soybean in 2838 B.C. Henry Ford. Nitragin inoculant. Whole soybeans are not suited to European foods and tastes. Soy flour is well suited and inexpensive. The factory at Colombes [established by Li Yu-ying] that made soymilk, tofu, and various condiments. Berczeller’s soy flour. Soja-Soyolk and its nutritional composition. Lecithin. Soy protein is high in quality. John Ruhrah in Baltimore (Maryland), Hermann and Neumann in Germany, and Sinclair in America. Soy flour is rich in protein and contains little starch. Address: Former head of the Laboratory at the Faculty of Medicine of Paris (ex-chef de Laboratoire à la Faculté de Médecine de Paris).


Summary: “Much credit is given to a soybean flour, ‘Edelsoja,’ which has a protein content of from 40 to 45 per cent and is added to soups, bread, pastry, and macaroni.” The
ingredients of German “Pemmican” include smoked meat, soybean flour, plus various fried fruits, vegetables, etc.


• Summary: This is a translation of a German-language publication titled Speisenzusammenstellung unter Mitverwendung von Edelsoja mit Kochanweisungen (1938. Berlin: Oberkommando der Wehrmacht [Army High Command]). The introduction to the translation, “Problems and possibilities of using Full Soya Flour,” explains that, in German, this flour is called Vollsojamehl (“full soya flour”) or Edelsoja (“pure soya”), however throughout the translation the term “pure soya” is used. This flour is used in many recipes as a substitute for eggs, milk, meat, and fats.

Note 1. This is the earliest document seen (Nov. 2013) that uses the word Vollsojamehl to refer to whole soy flour.

“A reduction in the use of animal products in the German diet is desirable for economic reasons, as these products must be manufactured from plant materials in a roundabout way by the bodies of the animals themselves. In this process, the animals use up the major part of the plant material consumed, about 80 percent, in preserving their own lives. This is an extravagant use of food. A restriction in the use of animal products is likewise to be desired for military reasons, as it is very much harder to accumulate stocks of meat and livestock products, and greater resources are necessary for their transportation” (p. 3).

The best plant product for replacing animal products is “full-fat soya flour,” also called pure soya (p. 3). “This flour is made from the soybean, the cultivation of which in the Reich, and particularly in Austria, is becoming yearly more important.” Pure soya flour is made from dehulled soybeans without the use of chemicals. It has good keeping qualities in spite of the high percentage of oil that it contains.

Note 2. This is the earliest document seen (Nov. 2013) that uses the term “full-fat soya flour” to refer to whole soy flour.

A table shows its high nutritive value compared with 1 kg of wheat flour, rye flour, pea flour, lean beef, pat pork, whole milk, and eggs; it contains more protein and more calories than any of these. Pure soya “provides very high nutritive value in a very small compass: 1 kg (2.2 lb) of full soya flour is equivalent in nutritive value to about 54 chicken eggs, 2500 g of clear beef, or 7.5 liters (nearly 8 quarts) of whole milk. In other words, one heaping tablespoonful of pure soya weighing 20 g is equivalent in protein and oil content to one chicken egg.” It is also a good source of lecithin (an important “nerve food”) and vitamin B.

“In making up the menus, the dishes are to be chosen so that at least 30 grams of pure soya shall be used per person per week” (p. 6).

Outline of the menus: Main dishes (for noon meal):


Maggi is widely used as a “seasoning sauce (Speisewürze). Not all recipes contain soy.

Note 3. Laszlo Berczeller, a soy pioneer from Austria, developed Edelsoja which was identical to the product used in this cookbook.

Note 4. Whole soy flour was the most widespread way of using soybeans as food in Germany during World War II.

Address: USDA.


And yet, it is precisely in Pavlikeni that the Bulgarian Minister of Agriculture has been conducting very interesting plant breeding tests since 1937, under the direction of Mr. Tscharnoff, with whom it is possible to correspond in German.

I was recently able to see sufficient quantities of five of the varieties that are being grown in Pavlikeni. I was very impressed with them. Mr. Tscharnoff is more than willing to exchange samples of soybean seeds (semences de soja) with French plant breeders, but he requests that people not write him in French, because he does not understand it.

Hungary: For several years now, Germany has been growing soybeans in Romania and Bulgaria, and has achieved admirable success. This success has led Hungary to emulate these efforts.

Around 60 years ago, soybeans were introduced in Hungary. For more than 50 years, they grew almost unnoticed, disdained and little used, but for the past 6 years, they have taken off unexpectedly.

The Edmond Mauthner company from Budapest bred some very well-adapted varieties, not only for the Hungarian environment, but also for the country’s individual needs.

The Edmond Mauthner company runs large trial stations, one in Iregszemcse (Felsöireg), and the other in Derekegyhaza (Alföld). Since 1935, highly experienced plant breeders at these stations have been working to create varieties that will bring Hungary great benefit. One of these scientists, Dr. O. Knapp, is very kindly keeping me informed of the work and its results.

A large number of varieties with very different origins were tested and bred. The tests resulted in three nice varieties with very light coloring: Universel, Gros Blanc and Petit.
Jaune [Universal, Big White and Little Yellow]. Having seen these varieties, I can confirm that they are very successful. They have also been recognized by the state.

The growing season lengths for the three varieties listed above are as follows: from 140 to 145 days, from 140 to 143 days, and from 135 to 142 days. On one hand, the attempt is to develop plants that mature early, in order to produce hay after the soybeans, before the end of the season. On the other hand, they are trying to produce seeds rich in protein and fat, or with high seed yields. They are striving to increase the number of seeds in each pod, increase the number of pods, and make the seeds larger. In particular, they are attempting to develop varieties whose pods no longer touch the ground, to make mowing easier and prevent seed loss.

It has been observed many times that the growing period for highly recommended American varieties—at least in early trials—is longer in Hungary than it is in the United States. I will cite only one example. The famous Easycook variety (called this because it is softer when cooked than other varieties) has a growing period of 125 days in America, and never reached maturity in Hungary.

Hungarian plant breeders are proponents of nitrogen fixation, meaning that they inoculate seeds with the appropriate bacterial cultures.

In 1940, the two stations sowed more than 800,000 seeds by hand, seed by seed. The Iregszemcse station tended to more than 120,000 soybean plants, with different seeds by hand, seed by seed. The Iregszemcse station

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was one that came from Öland Island [not Aaland Island] in Sweden. Algot Holmberg and Sons from Norrköping, with permission from Professor Jan Muszynski of the University of Vilnius (Poland, currently U.S.S.R.), introduced soybean cultivation in Sweden. Instead of failing as others had predicted, the company produced very encouraging results. They recently published an illustrated flyer with strong supporting testimony, that invites those who live in southern Sweden, from Gotland province and Öland Island, to try growing this multipurpose plant.

You may write in French, English or German to Algot Holmbergs Utsädesförädling, Norrköping (Sweden).

Note: This is the earliest document seen (Aug. 2015) that is by or about Sven A. Holmberg, or his work breeding soybeans for northern latitudes and/or cold climates.

Continued. Address: Dr., France.


**Summary:** Continued: Switzerland: In Germany, two firms have launched commercial soyfoods: 1. Hensel-Werke, of Stuttgart-Cannstatt and of Magstadt (Wuerttemberg); 2. The Neue Edelsoja Gesellschaft, of Berlin. But it is in Switzerland that we find the record number of companies making soyfoods.

Note. This is the earliest document seen (June 2015) that mentions Hensel-Werke in connection with soyfoods, or that states that Hensel-Werke has launched a commercial soyfood.

The house of Morga S.A., of Ebnat-Kappel (near Saint-Gall), headed by M.E. Lieberherr, who was Swiss consul in East Asia, created, a few years ago, an exquisite line of edible and drinkable soy products. Also he published an excellent collection of recipes for soy foods and those based on soy.

The large firm of Conservenfabrik Lenzburg, of Lenzburg (between Zurich and Berne), client of the house of Morga S.A., sells a delicious spread named “Hero-Soto” composed of tomato puree thickened with soybean puree. This spread, which is very rich in nutritive value (protein, oil, carbohydrates, lecithin, mineral salts) and calories, quickly gained public favor, especially among people who enjoy sports (sportsifs). M.A. Niklaus de Bienne, a manufacturer of canned meats and likewise a customer of the house of Morga S.A., has introduced a canned meat product with added soy puree in a homogeneous mass. It is a very concentrated food. It is permitted to gouty and rheumatic patients, and to hypertensive patients, because the soy offsets the acidity (pH) of the meat and inactivates its purines. Diabetics also use it to their advantage. Mr. Niklaus’ product is very rich in calories, which also recommends it very much to the army and to those who enjoy sports.

Of the numerous creations of the house of Morga S.A., I will mention only the main ones: defatted soy flour (farine de soja déshuilée); several soy spreads (pâtes de soja à tartiner); soy-based flour patties (farine à friandelles, à base de soja); soy-based breadcrumbs (chapelure à base de soja); soy flakes (flocson de soja); soy bouillon tablets (bouillon de soja en comprimés); soy condiments (condiment de soja); soy-based noodles, spaghetti and small pieces of pasta (nouilles, spaghetti et petites pâtes à base de soja); soups with small pieces of soy-based pasta, and spinach and tomato (potages de petites pâtes à base de soja et d’épinard et à base de soja et de tomate); soy-based biscuits (biscuits à base de soja); soy-based puddings (puddings à base de soja); soy chocolate (cacao au soja); lunch with soybeans and maltose (déjeuner au soja et au maltose); soy products for infants and young children (produits de soja pour nourrissons et enfants en bas âge).

Translated by Elise Kruidenier (May 2015). Address: Dr., France.


**Summary:** Continued: Germany: It was a German naturalist who introduced the soybean to Europeans. Englebert Kaempfer (1651-1716), a native of Westphalia (German: Westfalen), was in Japan from 1691 to 1692, and in 1712 his book entitled *Amoenitatum exoticarum politico-physico-medicarum* was published; it mentioned the soybean. In particular two varieties; *kuro name*, which had black seeds, and *daidzu sinku*, a dwarf soybean with blackish seeds. From that moment on, the soybean gained a foothold in German literature; even novelists and poets became attached to it.

In the 19th century, the soybean started to be cultivated in Germany and Austria (in southern Tyrol and Istria [the latter in today’s Slovenia]).

During the war of 1870, the captain of the saxon artillery, Othon Wehrhan, discovered in the botanical garden of Montigny-les-Metz (in Moselle [in the department of Lorraine in northeastern France]) an unknown plant which was identified as the soybean. He took some seeds which he planted, in the spring of 1872, in his field, near to Meissen in Saxony [in central eastern Germany]. Although the germinative power of the seeds was diminished, Wehrhan obtained a satisfactory harvest. He continued his trials for several years with success.

The great impulse was given by the agriculturalist Friedrich Haberlandt (born 21 Feb. 1826 at Pressburg [Bratislava, capital of today’s Slovakia], died 2 May 1878 at Vienna). Having seen soybeans, at the World Exposition which, in 1873, took place at Vienna, Haberlandt became interested in them. He acquired 20 varieties which originated in the Far East [East Asia], Transcaucasia, and Tunisia. With
the assistance of intelligent and studious farmers (eventually they numbered 148), he conducted trials for several years. In 1876 he obtained a chair at the Royal College of Agriculture of Vienna, but he died suddenly and prematurely, two years later.

The early varieties had given Haberlandt full satisfaction; the results were unexpected. He reported all his findings in his book The Soybean (Die Sojabohne..) (Vienna, 1878). The seeds harvested were heavier than the seeds planted. In addition, their protein and fat content increased. Haberlandt concluded: Farmers see their own interest in adopting this miraculous among foreign plants entrusted to their care. In addition to their own advantage and they will increase the welfare of all people and the happiness of their homeland. Prophetic words!

At that time, we were still far from being able to predict the most unexpected gifts of the soybean: artificial wool, synthetic rubber, artificial silk, plastic materials, alternatives to metal, and explosives.

Later, another Austrian, Maurice Fürstenberg, who resided at Frohnleiten (Upper Styria [today’s northwest Austria]), was well versed in the cultivation and selection of soybeans. He left us two great works, which I class among the best treatises of soyism (sojaïsm): Die Einfuehrung der Soja, eine Umwaelzung der Volksernaehrung (Berlin, 1916) and Die Soja: eine Kulturpflanze der Zukunft und ihre Verwertungsmoeglichkeiten (Berlin, 1917). The first of these two works had a preface written by the son of Friedrich Haberlandt, the scientist Gottlieb Haberlandt.

In 1908, the cotton harvest having been very bad and the oil of the cotton seeds being defective, Great Britain began, with the assistance of the Japanese firm Mitsui & Co., to import soybean seeds. Germany followed this example starting in 1910. The defeat of Germany in 1918 [World War I] gave her time to pause and reflect. The lack of lipids and of proteins having greatly contributed to the defeat of the Central Powers [Axis], Germany any, anxious to get up and recover its greatness, began to study soy in a variety of different ways. After Hitler came to power, this research was intensified and deepened. Hitler surrounded himself with specialists of every type. Starting in 1933, the soybean was methodically cultivated in Germany. The Reich also bought up a large proportion of the soybeans produced in Manchukuo [Manchuria]. And it also began to cultivate soybeans in Romania and in Bulgaria. The Völkscher Beobachter (main edition) of 17 Dec. 1917 had revealed how, why, and to what end the Reich had started to cultivate soybeans in the Balkans. It was the well-known I.G. Farben-Industrie, of Frankfurt-am-Main, which had incited the Balkans to produce soybeans, and good soybeans, on behalf of the Reich. It is said that poverty and famine make men creative. That is true. But these were not the only things that made the Reich to act.

Germany’s Hitlerite leaders started with an idea that was above all creative, a great reflection in the vein of those that lead to great discoveries and reformist inventions. These fertile inspirations led the German leaders to see that acclimatizing soybeans in Europe would modify the continent in a great way, and stimulate and improve our industrial lives to a considerable degree.

An interesting detail: the scandalous collapse of the Viennese bank Österreichische Kreditanstalt played greatly into I.G. Farben’s decision to invite the Romanians and Bulgarians to produce soybean seeds. In this way, the firm I.G. Farben, great creator of the touring bank, was able to recover its money, not to mention generate concomitant and consecutive profit.

Currently, Germany has highly experienced plant breeders who are worthy of our attention and emulation. As soon as the Nazi Party came into power, the Reichsnährstand (Agricultural Production Corporation) guaranteed a firm price to producers, three to four times higher than global soybean prices. At the same time, in France, Daladier, Monnet, Louis-Dreyfus [French politicians] and all the rest threw a wrench in the gears. In their hatred of soybeans, they went as far as to denounce me as a “bad French person,” subject to tight surveillance.

In many state establishments, the Reich directs soybean breeding. Moreover, soybeans are studied by the Wehrmacht’s agricultural schools. Agricultural unions are also involved in this endeavor, and university botanical institutes contribute as well to better understanding soybeans. There are thus many individual groups that have achieved very encouraging successes.

Professor Guillaume Riede, director of the Agricultural Botanical Institute (Institut de Botanique agricole) at the University of Bonn (Rhineland), is a fervent supporter of soybean cultivation, and the inoculation of all legumes.

Mr. A. Dieckmann, from Heimburg (in Harz), is a skilled soybean breeder.

Inoculation, the technique of applying the appropriate bacterial cultures to legume seeds, was fully studied and refined in Germany. To all readers, I recommend multiple readings of the remarkably well-illustrated short work edited by the Radicin-Werk company, from Westerrade (Holstein), titled Impf-Fibel: Worte und Bilder zur Stickstof-frage beim Anbau kleeartiger Gewächse und Hilsfenfrüchte. [Inoculum Primer: Words and Pictures about the Nitrogen Question When Growing Clover-like Plants and Legumes].

German housewives are very familiar with non-defatted soybean flour, this reinvigorating and analeptic product that acts as a mixture of milk, eggs and sugar, and can be used advantageously in many dishes. This flour is sold not only in pharmacies, but also at the grocer’s, because in Germany, it is not considered a diet product for weaklings: it is seen as a food. I know of two very high-quality brands of this flour. They are produced by Hensel-Werk, from Stuttgart-Cannstatt and Magstadt (Württemberg), and by Neue Edelsoja-
Gesellschaft, from Berlin.

The Wehrmacht was able to use many soy products and derivatives. This is so well known that I will not even discuss it here. But what will we— the French—do? We had soy advocates, but they were ignored. The eternal tragedy of the French innovator! In France, the most deserving of people fought their entire lives without achieving victory. Often, too often, as in the Arab legend of Antar, it is only through death that victory is achieved. Let us not forget Léon Rouest (1872-1938) who desperately fought for the French soybean and whom the corrupt government let die in destitution!

Romania: Bessarabia [in today’s Moldova and Ukraine] specializes in cultivating and exporting industrial plants, in particular, the soybeans that it sold to Germany.

In 1937, this province alone was responsible for 78.3% of all Romanian production.

Note: Translated by Elise Kruidenier, Seattle, Washington. Address: Dr., France.


• Summary: The author contends that soybeans should be cultivated and used on a large scale in India. Contains an excellent, early review of the history and past agronomic investigations of the soybean in India. Contents:

“On the agricultural side the following are some of the results obtained [in Germany]: (1) Drill sowing is better than broadcasting. (2) Thick sowing accelerates maturity. Breadth between rows should not exceed 50 cm. (= 20 inches). The lighter the soil, the smaller the space between the lines, but not less than 35 cm. (= 14 inches). In the rows the best distance between plants is 10 cm. (= 4 inches). (3) Seed rate should not be less than 15 kilograms per ¼ hectare (67 lb. per acre). (4) Soybeans can be successfully grown as a mixed crop with early potatoes. It is to be noted that these recommendations are for German conditions and might not suit India.”

The author recently received a letter from an agricultural chemist who noted a strange fact: “I find that the explanation of why soybeans are not more widely grown than they are, in India, is because there is no market for them. Now in these days of deficient dietaries, financial stringency and other economic factors connected to the War, it does seem to me to be a very strange fact that there is no market for one of the most nutritious foodstuffs both for humans and animals in this country... Here is a produce which can be easily grown, easily transported, without deterioration, and for which in these days there ought to be an almost unlimited demand and yet it is not grown because we are told there is no market for it. I myself take soybean in vegetable curry two or three times a week and it is a most excellent food... We ought to be supplying this to the army in large quantities. In addition there are many industrial products which can be manufactured from the soybean and which are manufactured in other countries but not in India. I suggest that we ought to consider the soybean for India and get down to the problem of propaganda and the production of
the soybean and soybean products on a considerable scale.”

“Preparation of recipes: There are two ways by which soybean could be introduced into the Indian dietary. The bean might be prepared and cooked by domestic methods and consumed as an alternative or addition to other pulses... Alternatively, soybean flour of neutral taste could be manufactured [using the Berczeller process], as in Germany, and used as an ingredient in biscuits, cakes, etc.” The author doubts that either approach would succeed. “In addition to the Darjeeling district of North Bengal, soybean is grown also in Nepal, Bhutan and Sikkim, the total area in all these places being probably about 20,000 acres. It is also grown in the Kumaon hills. In addition there has been experimental cultivation in almost every part of India and soybean has been grown in the Punjab, Bengal, Bihar, Orissa, Assam, the Central Provinces and Berar, Madras, Bombay, Baroda, the United Provinces, Sind, Mysore and Kashmir. The Agricultural Departments of several of these provinces and states have issued leaflets giving directions for its cultivation.”

“Some non-official experience: Mr. M.R. Dokras, LL.B., of Chandur, Berar, published a small pamphlet in which he gave his experience of growing soybean since 1916.” Seed yields ranged from 500 to 2,000 lb/acre. “Mr. George A.C. Hearsey has, since 1936, grown soybeans on his place–Palia Ranch, near Palia Kalan Station, R. & K. Railway, Oudh. In 1937 he harvested 185 maunds from 45 acres, an average of just over 4 maunds (330 lb.) per acre... His dairy cows ate greedily the dried soybean plants and soybean bhusa... In 1940 Dr. W. Thompson, of St. Luke’s Hospital, Chabua, Upper Assam, grew for the first time soybean supplied by the Assistant Director of Agriculture, Shillong. Two sowings done in August ripened together and gave a heavy yield.

“Economics: In 1934 a Crop Planning Conference was called in Simla by the Government of India, when consideration among other things was given as to what new or substitute crops should be encouraged. Notes were submitted by various Directors some of which reported that soybean could be grown quite well in their provinces or states but that the price was so low that it was not worth while to try to produce it.” In 1934 the Director of Agriculture from Sind (Karachi), and from Punjab each made such a statement. “It is not an impossibility to introduce a new crop into India (the history of groundnut in India shows this) but the new crop must put more money in the pocket of the cultivator than the crop it is going to replace.” Address: C.I.E., D.Sc., I.A.S., Agricultural Commissioner with the Government of India.


• Summary: This is a summary of the translation of an important book titled Speisenzusammenstellung unter Mitverwendung von Edelsoja mit Kochanweisungen (Formulation of menus using Edelsoja, with recipes), by Oberkommando der Wehrmacht (German Army High Command), Berlin, 1938.


Resume of recipes as shown in translation: Soups (soups from army canned soups, sweet soups), roasts, roast sliced meat, minced meat dishes, fish dishes, egg dishes, potato and other vegetable dishes, alimentary pastes (macaroni, noodles, etc.), one-dish meals, sauces and gravies, salads and fruit dishes, desserts. Note: No actual recipes are included in this article.

The article begins with a translator’s note: “Scientists have devised a method of milling and extracting [removing] the bitter substance from soybeans without removing any of the oil. This produces a yellow flour containing 40 percent protein, 20 percent fat, 27 percent carbohydrates, 5 percent ash, and 8 percent water. This is called full soya flour (“Vollsojamehl”) or pure soya (“Edelsoja”). Its composition and use differ widely from cereal flours.”

The text states: “A reduction in the use of animal products in the German diet is desirable for economic reasons, as these products must be manufactured from plant materials in a roundabout way by the bodies of the animals themselves. In the process the animals use up the major part of the plant material consumed—about 80 percent—in preserving their own lives.”

Full-fat soya flour (Vollsojamehl) is also called Edelsoja. This flour is made from the soybean, the cultivation of which in the Reich, and particularly in Austria, is becoming yearly more important... Edelsoja is made from shelled [dehulled] soybeans without the use of chemicals.” It has very little taste of its own. The flour itself should not be fried, since it its high lecithin content causes it to burn easily. “In making up the menus, the dishes are to be chosen so that at least 30 gram of Edelsoja (28 gm = 1 ounce) shall be used per person per week.”

The recipes: “This extensive complete collection of recipes for use in German Army kitchens contains 270 separate varied recipes, more than 100 of which include small amounts of soya flour and a few contain larger percentages.” In general among the recipes 5 grams (roughly one teaspoonful) of Edelsoja are to be mixed into the portion for each person served. A list of the names of all recipes containing soya flour is given.
- **Summary:** Contents: Metabolism of infants. Indian conditions (pediatric advances, shortage of cow’s milk, promise of soya bean milk). Clinical experience with soya bean milk (brief review of the literature). Methods of making soya bean milk: Raw bean flour, wet grinding, roasted bean flour, steam processed flour (Berczeller process for Soyolk), soya bean flour with dried milk (Helen McKay and Yolac), ground soya bean milk (made with groundnuts and soya beans). Composition of soya bean milk. Conclusion. Address: From the Section of Physiological Hygiene, All-India Inst. of Hygiene and Public Health, Calcutta.

- **Summary:** Contents: Introduction. Arguments in favor of a diet based on soy (soyfoods) (7 arguments). Soy flour: its types and advantages. A table shows the nutritional composition of four types of soy flour, including whole soy flour (farine de soya complète, made by the processes of Berczeller, Goessel, Horvath, etc.). Soy flour made from soybean cake obtained by pressing. Soy flour made from soybean cake obtained by solvent extraction. And Soyolk. Patents on soy flour. Another table shows the nutritional needs of an adult weighing 70 kg, based on whether he is physically active or inactive as furnished by various types of flour (soya, wheat, rye, maize, or rice). A third table shows the nutrients provided various vegetable and animal foods. How to consume soy flour? In bread or in a military ration. Contains an excellent bibliography at the end. Address: Technical Adviser of the National Soybean Center (Conseiller technique du Centre National du Soya).

Address: Medizinisch-chemischen Institut der Universitaet Graz [capital of Styria, Austria].

- **Summary:** Dr. Laszlo Berczeller, a young Viennese physiologist, developed a process for making soy flour by which not only the bitter taste was removed, but the fat was also prevented from turning rancid. He obtained his first patent in 1922. He “wanted his new food adopted at once, all over the world. He started bombarding governments, scientific institutions, prominent men all over Europe, and even the League of Nations, with letters and scientific papers and pamphlets, describing the extraordinary nutritional value of the soybean and of his new, durable soy flour...  
“He found people with money who formed companies for manufacturing and selling his soy flour, first in Austria and Hungary, then in Holland, England, Germany, Czechoslovakia, and finally the United States.”  
“Shortly after Hitler came to power in Germany, however, something very significant happened. The huge and powerful I.G. Farben-trust, a company which controls most of the chemical industry in Germany and was interconnected with most of the chemical industry all over the world, acquired the license of the Berczeller patents for Germany, Austria and possibly some other countries. Nobody seemed to pay any particular attention at that time, or to realize what this meant.  
“It meant simply and plainly that Hitler was preparing for war, and was getting ready on the food front as well as on all other fronts. This was made abundantly clear by the business policy of the new licensees.” I.G. Farben moved slowly and started no huge publicity campaign to create a market for the new product. But the company did begin promoting the cultivation of soybeans in southeastern Europe.  
“Now price was no object. Through an agreement between the Hitler government and the governments of some of the Balkan countries, particularly Rumania, the I.G. Farben-trust undertook to supply machinery and instructors, and obtained the exclusive right to purchase the entire crop of soybeans. During the following years most of the crop was used for seed and the acreage multiplied every year.”  
So when World War II “broke out, Hitler had a large supply of soybeans growing right in his back yard.” The supply was large enough to “provide every soldier in his armies with sufficient soy flour each day to maintain health and strength even if he had to go without meat, eggs, and dairy products. A special Army Soya Cook Book was issued by the German Army High Command, containing hundreds of recipes which provide for the addition of soy flour to every dish, from soup to nuts.” The author then reprints a long extract from an article published in the Times (London) on 23 April 1940, about soybeans and Edelsoja in Germany. He notes: “I might remark here that even the name ‘Edelsoja’ was invented by Dr. Berczeller. It is an intentional analogy to...
LASZLO BERCZELLER (1890-1955) 88

sought the advice of Dr. Henry Borsook, professor of Biochemistry at California Institute of Technology, in standardizing a formula for a multi-purpose meal which should meet the following requirements.

1. It must be really palatable, whether served hot or cold.
2. It should be packageable and keep well over long periods without refrigeration.
3. It should be practicable for preparation and handling.
4. It should provide adequate subsistence for one person for one-third of a day with essential vitamin and mineral constituents.
5. While designed primarily for service from restaurant facilities, it should be adaptable for general dispensation where facilities are primitive; for use in relief and rehabilitation work without reliance on special equipment.
6. The cost, including packaging, must be 5¢ or less.
7. To avoid monotony in frequent use it should be adaptable to combination with small amounts of other food and assume the dominant flavor of added items.
8. It must cook easily and quickly.
9. It must be readily acceptable to both large and small-scale cooking.
10. It should incur no drain on scarce civilian food supplies of the United States if used for overseas relief feeding.

Dr. Borsook undertook to meet these requirements and Clifton’s initially sponsored the research, assisting financially and in the establishment of an Experimental Kitchen at the Institute presided over by a skilled French cook, Madame Soulange [Solange Berczeller].

It was concluded that the requirements set up could only be met by the use of dehydrated foods, fortified with vitamin and mineral concentrates.

After the constituents had been generally agreed upon and it was placed in service at Clifton’s as ‘Vita-Meal,’ the California Dehydrator’s Association joined in the sponsorship of the research, broadening its scope to other problems of dehydrated foods.

The multi-purpose meal formula was thereupon stated in terms of dehydrated components and soy-beans. Manufacture was undertaken by F.W. Boltz, Los Angeles dehydrator. Mr. Boltz and his staff spent considerable time, effort and money in further experimentation improving the pre-cooking, processing and combination of the various items, developing manufacturing methods and introducing the product to prospective large-scale users, public agencies. He also was instrumental in making available a plan for large-scale production through facilities of other dehydrators and food processors throughout the United States.

A 20,000 pound trial order was placed by the French relief agency in April 1945. It was through Mr. Boltz that the meal, prepared by the famous chef of the Omar Khayyam restaurant, George Mardikian, was served to delegates to the

In 1943, in line with an expansion program, Clifton’s

In “Austria he introduced soy flour into a bread named ‘Manna.’”

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“Character of the Multi-Purpose Meal:” Thirteen characteristics are listed; they are somewhat different from the 10 requirements that Mr. Clinton presented to Dr. Borsook. For example: “2. It violates no dietary rule of any religious faith.” “7. The food cost is approximately 4¢ per meal. 8. Protein base is supplied by soy-bean grits, to which are added dehydrated potatoes, cabbage, tomatoes, onions, leek, parsley, herbs, salt and pepper.” 12. There is no patent on the formula…”

Preparation. Availability (“F.W. Boltz Corporation, 3614 Council Street, Los Angeles, California, is the present source of the basic product—Multi-Purpose Meal”). Percentage composition of Multi-Purpose Meal (Soy grits 68.0%. Potatoes 9.0%. Vegetable seasoning and salt 8.6%. Cabbage 4.5%. Onions 4.5%).


“A combination of legumes and cereal and other vegetable proteins can provide the protein equivalent to meat or eggs. By adding to this mixture calcium, iron salts and certain synthetic vitamins, a vegetable mixture can be made which is the nutritional equivalent of meat and dairy products at far less cost. The food engineer thus can do more than contrive substitutes for certain natural (i.e. unprocessed) foods. He can make low cost foods as nutritious as expensive foods.”

“Vita-Meal: As served daily at Clifton’s ‘Vita-Meal’ (with Multi-Purpose Meal as its main constituent) contains two items:—1. Multi-Purpose Meal, prepared to take out in a small carton with a wooden spoon. 2. A dessert wafer. This is a chocolate sandwich-type cookie, the filling of which contains vitamin C, the fugitive vitamin found in leafy green vegetables and orange juice, but which is destroyed in cooking. This wafer is prepared by a Los Angeles firm specializing in vitamin preparations.

“At Clifton’s the dehydrated Multi-Purpose Meal is enriched and varied by the addition of vegetable fats, meat, fish, nuts, cheese and other ingredients. These improve the flavor and give the meal a daily variety as well as raising the caloric value.

“More than 3 million subsistence meals of various types have been served at Clifton’s. During the past year of service, Multi-Purpose Meal has proven its claim to a place in any program for emergency or subsistence feeding.”

Note: This is the earliest document seen (Dec. 2010) concerning Clifford Clinton and his work with Dr. Henry Borsook and the development of a highly nutritious, low-cost food. It is also the earliest document seen (Dec. 2010) that lists the ten requirements of the multi-purpose meal Dr. Borsook was asked to develop, or that gives its name as “Vita-Meal” or “Multi-Purpose Meal.” Address: 618 So. Olive St.–648 So. Broadway, Los Angeles, California.


“Until comparatively recent years the soybean industry was confined largely to the Orient, chiefly Manchuria, yet within only three decades it has become firmly established in the Western World. Since the turn of the century, both Germany and the United States have developed mammoth industries based upon the processing of soybeans and the utilization of the oil and meal. The German development preceded our own, however, and much of our technology has therefore been borrowed from that country.

“German ingenuity and industry have gained fame in many other lines, and our government felt it desirable to learn as much as possible about recent technological progress in the Reich by sending investigators to follow the conquering armies of the Allies. The author was one of these investigators and was sent to Germany shortly after VE day to study the soybean industry. This assignment automatically included the entire German oilseed processing and oil refining industries, for it is impossible to consider them separately as we would consider the soybean, linseed, and cottonseed industries in the United States.

“The mission was sponsored by the technical industrial intelligence committee and entailed approximately 3 months of travelling from one end of Germany to the other. During that time, nearly all the oilseed mills and edible oil refineries, except those in the Russian zone, were investigated, and a series of reports was prepared in which all the intelligence obtained has been recorded. These documents were originally classed as restricted material by the Joint Chiefs of Staffs, but they have since been declassified and are being distributed to American industry in various forms by the publication board of the U.S. Department of Commerce. A private publisher is also assembling them for release as a single book [see Hobart Publishing Co., 1947].

“The greater part of the investigation was accomplished alone, but a part of the time the author was accompanied by Dr. K.S. Markley of the Southern Regional Research Laboratory, New Orleans, Louisiana, to whom he is indebted for the accompanying photographs.

“Organization of war time industry: Germany has never produced large quantities of oilseeds within its borders but, instead, has relied upon imports. For this reason, processing facilities are concentrated in seaports and on navigable waterways. The largest installations are on the Elbe River in the Hamburg-Harburg area, which has become famous as the world’s greatest oilseed center. These mills processed all kinds of oilseeds, and soybeans were one of the most important, being obtained largely from Manchuria. The
same factories, however, also crushed and extracted copra, palm-kernels, peanuts, rapeseed, and numerous other seeds, frequently in the same equipment. Practically all of these raw materials were imported. Nearly all German installations for processing oilseeds include facilities for refining the oil. The refined products are then sold to margarine factories where they are mixed, usually in the ratio of 60 parts of hydrogenated fat to 40 parts of unhardened oil, with other ingredients to make margarine. This product is somewhat different from the material bearing the same name in this country. It is the housewife’s all-purpose fat, used as a spread on bread, for frying and cooking, and for many other purposes. Practically all the vegetable oil processed in northern Germany is so utilized, but in the less populous southern districts considerable amounts of liquid oils are used in cooking. Only minor amounts have been made into products resembling our vegetable shortenings.

“It is well known that the shortage of edible fats contributed greatly to Germany’s defeat in World War I, and extensive preparations were therefore made to avert a similar scarcity during the recent conflict. Huge stores were accumulated, amounting to more than 600,000 metric tons of oil, and these were used sparingly to augment supplies obtained from other sources. Considerable quantities were captured or were made available through the occupation of most of Continental Europe. Also, Germany tried to step up its own domestic production, and the growing of rapeseed was promoted by subsidizing its production through taxes levied on the margarine made from the oil. This crop was grown in eastern Germany on land normally used for raising wheat, and it was planned that the consequent reduction in the production of wheat would be offset by obtaining grain from the Ukraine. This plan failed, however, and the result was a severe blow to the nation’s food supplies.

“During the early years of the war the Germans imported Manchurian soybeans, as well as peanuts and copra, from Russia. Reports circulated in this country that the Russian government did not fulfill its commitments appear to be incorrect, for records of the German oilseed industry reveal that every order apparently was filled completely and on schedule. No soybeans were available for extracting oil, however, after 1941. The production of soybeans was expanded in Rumania, but the supply obtained from that area was only about 60,000 metric tons per year and was not processed for oil.

“Still another source of edible fats was the production of synthetic glycerides from carbon monoxide and hydrogen, two gases obtained from coal. The amounts actually used in foods, however, were quite small. Animal fats, butter, and many minor sources of fats and oils all contributed to the supply, but food fats were rationed at a very low level throughout the war. Toward the end, the supplies became so small that the population suffered extreme hardships. This serious shortage still exists and, along with scarcities in other foods, has held the population on the verge of mass starvation. At the time of this investigation, the ration allowed each civilian was less than 4 ounces of fats, including butter, per week, but even these slender allotments could not be obtained by most of the population.

“Processing oilseeds: German oilseed technology differs from that in this country because German mills must handle a variety of raw materials. In general, soybeans are processed by solvent extraction, by use of both batch and continuous types of equipment. Other seeds that contain more oil, are usually forepressed by passing them through expellers one to three times to reduce the oil content to approximately 15 percent. The oil remaining in the residue is then extracted with solvents. This treatment may seem unusual, but it is based upon sound reasoning and is undoubtedly the most efficient method for coping with conditions normally encountered in the German industry.

“German expellers are somewhat different from the Anderson expellers and the French screw presses used to process soybeans in this country. The German machines are primarily high-capacity, low-pressure presses designed solely for reducing the oil content of seeds to such an extent that the residue can be processed economically by solvent extraction. Germans do not use their expellers to press soybeans. Hydraulic presses are often employed for forepressing some seeds, and sometimes for finishing in lieu of solvent extraction, but they, too, are not ordinarily used for processing soybeans.

“Extractors for treating soybeans with solvents in Germany are of two types, batch and continuous, with the batch type predominating. Many well-qualified technologists still prefer the batch system because it is cheaper and equally efficient in most respects, and it is somewhat more versatile than the continuous systems.

“Batch extractors are installed in batteries of about 10 kettles which are filled with expeller cake or flaked soybeans through manholes in the top. The charge rests on a perforated false bottom, and hot solvent is pumped through approximately five of the pots in series. Every few minutes a completely extracted vessel is removed from the line and a freshly filled one is added, using a sequence of operations which affords countercurrent contact between the solids and the solvent. The kettles containing the completely extracted meal are allowed to drain, and the residual solvent is then removed by blowing live steam through the charge while it is being churned by one or two large stirring blades attached to a central shaft. When free of solvent, the meal is discharged through a side door, and the extractor is then refilled and reconnected to the extraction line. Solvent is removed from the oil in apparatus quite similar to that used in continuous extraction plants both in Germany and in the United States. It consists of pre-evaporators for concentrating the miscella, followed by stripping columns in which practically all the remaining solvent is scrubbed out with steam.” Continued.

• Summary: Continued: “Soy flour: The production of soybeans in the Balkans amounted to about 60,000 metric tons per year during the war, and these beans were of excellent quality. They were used almost entirely for feed, seed, and for making full-fat soy flour and flakes. Four factories produced flour and flakes, all of which were sold to the Wehrmacht for use in soups and other foods, and it was an important item in the diet of the German soldiers. The production amounted to 25,000 to 30,000 metric tons of food per year.

“Edible flour was manufactured in much the same manner as in the United States, by use of the Berczeller process for debittering the beans. In at least two of the mills, the steaming and subsequent drying of dehulled soybeans was effected in an apparatus similar to a stack cooker. The product was then ground into flour, which represented a yield of 83% of the original beans. To make flakes, the seeds were debittered without removing the hulls and were then re-moistened and passed between smooth rolls. In spite of the presence of hulls, the product possessed an agreeable flavor.

“Effect of war on oilseed industry: The magnitude of the destruction of the German oilseed industry caused by bombing can be fully appreciated only by actually seeing the ruins. A few plants escaped serious damage, but the majority have been at least partially destroyed. Many are totally wrecked.

“The condition of the plants in the great oil-milling center of Hamburg-Harburg was typical. In this region there were four large mills, each processing over 1,000 tons of seeds per day and refining the resulting oil, and there were many smaller mills and margarine factories. Of the four big plants, F. Thörl’s Vereinigte Harburger Oelfabriken was the least damaged, being possibly 15 to 20% destroyed when hostilities ceased. The damage had been more extensive at various times during the war, but much of it had been repaired. The Harburger Oelwerke Brinckmann [Brinckmann] und Mengel was about 50% destroyed.

“The Hansa-Muhle, which was perhaps the most famous soybean mill in the world, was approximately 80% ruined. It normally processed 1,000 metric tons of soybeans per day, and its facilities and buildings occupied a large tract of land in the Hamburg harbor district. Its various buildings were destroyed, one by one, in the recurring air raids, but the staff always managed to save the extractors and the still house. During one raid, it is said that flaming oil poured from ruptured storage tanks and completely surrounded the extraction plant, but the fire was brought under control. In a gigantic final raid in March of 1945, however, the still house and extraction plant were wrecked by bombs and burned.

The result is shown in Figure 4.

“The mill of Noblee und Thörl was probably the largest in Germany, if not in the world, and processed well over 1,000 tons of seeds per day, refining all the oils on the premises. It reportedly received between 2,000 and 3,000 bomb hits during the closing months of the war, and Figure 1 shows some of the resultant wreckage which covers many acres along the waterfront. The destruction amounts probably to about 95 percent. Many of the buildings have been so thoroughly bombed that it is impossible to determine where they stood. Figure 2 is a photograph of a plant used for extracting soybeans, and Figure 3 is a picture of the remains of the Tyca continuous extractor, used by Noblee und Thörl for extracting forepressed peanuts and rapeseed.

“The devastation throughout Germany, including that to the soybean and other oilseed mills, is so vast that it is impossible to estimate the time which will be required for rebuilding. It is certain, however, that many years, perhaps generations, must pass before Germany can be restored to the position of prominence which it once held in world trade.

Photos show: (1) Part of the wreckage at the mill of Noblee und Thörl. (2) The wreckage of the soybean extraction plant at Noblee and Thörl. (3) Wreckage of the Tyca continuous extractor used by Noblee and Thörl for extracting forepressed peanuts and rapeseed. (4) Wreckage of the extraction building at the Hansa-Muehle plant. Address: NRRL, Peoria, Illinois.


• Summary: Starting in 1920 again, for the second time, Austria promoted the production and utilization of soybeans, and with this the impulse for a new “soya wave,” which now went all over Europe, was unleashed. Here in Vienna a soya industry also began with the production of Edelsoja. Assistant Professor Kupelwieser used it to demonstrate the outstanding significance of soya as a protein source, going against the then current opinion that soya was primarily an oilseed. From my soybean breeding location at Platt in Lower Austria, Austrian cultivars spread all over Europe and even overseas.

Why should it not be widely known that valuable pioneering work was performed in Austria? The line of soybeans bred in Platt went to Poland, the Balkans, to Hungary, Belgium, Holland, and Greece, to Turkey, to Persia, Canada, England, Germany, Dutch Guiana [later renamed Suriname], Hindustan/the Indian Peninsula [Vorderindien, incl. India, Sri Lanka, and parts of Pakistan and Burma], China, Java, Tanganyika, to French Morocco, and Bessarabia [now part of the Moldavian S.S.R. in the USSR]. It was not only new breeds of soybeans that spread out from Austria but
had its origin here. This led to a change of opinion and the soybean came to be seen as a world power factor (Weltmachtfaktor), as is already well known today.

According to Dr. [E.C.] Winkler’s patented process for debittering soya, a very modern factory was erected in Vienna XX. In it, a part of the oil was expressed, leaving a meal with only half its original fat content. Dr. Winkler achieved, through prior debittering of the soybeans, an excellent food and salad oil that did not need to be further refined. Also, the production of unrefined salad oil from Edelsoja originated in Austria.

History of the introduction of soya to Austria (p. 11): On the occasion of the Vienna World Exhibition of 1873, Japan exhibited soybeans and awakened a great interest for this Asian plant throughout Central Europe. This was mainly because of the fact that in the Exhibition attention was called to the value of the soybean. The Viennese university professor Friedrich Haberlandt took the matter into his own hands. Through the agency of the imperial embassy / legation he had the Ministry of Agriculture acquire 20 soybean samples from Japan and China. The tests were done in the warmer provinces of the Monarchy. There were 148 agronomic trials introduced in Hungary, Dalmatia [a former region on the Adriatic coast of what is now Croatia; formerly an Austrian crownland], Kärnten [Carinthia, today a state in southern Austria bordering on Italy and Yugoslavia], Steiermark [Styria, a state in the mountainous part of central and southeast Austria], Istrien [Istria, in Slovenia since June 1991], and Mähren [Moravia, a region in central Czechoslovakia]. In 1877 Haberlandt had already gathered so much experience that exact guidance for cultivating soybeans could be given. At this time the first composition analyses were undertaken, so exact knowledge of the value of soybean seeds was obtained. Likewise, through Steuf and Wolker, experience was gained in pressing oil from the seeds, and selections were undertaken in the Botanical Garden at Vienna. The highest yielding types were called “Haberlandt” and these first appeared in the seed catalog of the great seed company Vilmorin Andrieux & Co. in 1880.

Haberlandt pointed out the value of the soybean as food and recommended a diet of soybeans and potatoes, which contained all nutrients necessary for human life. It was also recommended that the soybean be incorporated into the commissary provisions of the army, and in this process that peas in the popular pea sausage ‘Erbswurst’ be partially replaced by soybeans.

At that time, the soybean could not stand on its own. It remained strong for a long time in the peasant agriculture of Krain [Carniola; now in Slovenia] and Istrien, and served as a ‘coffee bean’ (Kaffeebohne) in the preparation of a breakfast drink. There were two conditions which stood in the way of the spread of soybeans. First, the soybean is a foreign food to us. When cooked, it remains hard and has an after-taste, an off flavor that is bitter. The very thin layer under the seed coat of the bean is the source of this after-taste. In addition, it was said that Asian soyfoods have no taste. What is more, there was plenty of food in the Monarchy, so there was no need for a new, foreign food.

The soybean completely disappeared from memory in Austria. It was only kept in a few botanical gardens as a curiosity.

In 1920 I began breeding soybean lines with the goal of getting ones that would ripen in our climate and give reasonable yields. Conditions for soybean culture became ripe after World War I due to the general lack of food. My starting material was a matchbox full of soybeans that a prisoner of war had brought with him from Siberia. After a long delay, the solution to the soybean problem was begun in Platt in lower Austria, near Zellerndorf in the district of Hollabrun. Some of the seeds ripened and in the next year those that ripened earliest were selected. In 1924 I was able to announce to Dr. Markus Brandl (the top agricultural official in the area) that I had a field of soybeans that matured in mid-September. Immediately Dr. Fritz Drahord was sent to Platt to inspect and report on the soybean plant. Drahord was the current top ranking agronomic official in Vienna in charge of plant cultivation and seed testing (Oberkommissär der Bundesanstalt für Pflanzenbau und Samenprüfung) and the assistant to Privy Councillor (Hofrat) Professor Dr. Tschermak von Seysenegg, who had been involved with soya at Royal College of Agriculture (Hochschule für Bodenkultur) in Vienna. He wrote a confirming report, that a good yielding, early maturing variety was now at hand. This first domestic variety was small seeded and black. It was called Platter SS (Black Seeded) 14.

Using newspaper articles and a small price list, I propagated soybean culture. I pointed out its significance as human and animal food, established connections with central authorities in China, and exchanged experiences and breeding material with research stations in Manchuria. The Chinese Eastern Railway soybean station in Harbin, which then employed a staff of 20 scientists, published annually a hefty volume with research results dealing with all questions of culture, breeding and utilization. In this way, Austria received new breeding material from Manchuria—over 80 soybean varieties. But in Platt they failed to perform up to our expectations because of the longer vegetation period.

Meanwhile, from the small-seeded SS 14 a very large seeded strain was selected. In the price list of 1929, eight lines appeared, with maturity times ranging from 114 to 128 days. One thousand seeds weighed 158 to 170 gm. Yields steadily improved throughout 1929. In the same year, the new varieties of Platt Yellow and Platt Yellow Giant were made available in small quantities for research. A table (p. 14) shows that 100-gm packets of mixed types were sold, including many black types and Professor Früwirth’s Black Eyebrow, all prefaced by the word ‘Platter.’
Note: This is the 2nd earliest document seen (Oct. 2007) concerning the cultivation of soybeans in Persia [renamed Iran in 1935]. Address: Braunsdorf–Vienna, Austria.


  “I. General: The C.F. Hildebrandt Co. is primarily a wet-process corn miller, producing corn starch and hydrolyzing it to glucose. It reportedly has also produced most of the soy flour used by the Wehrmacht [united armed forces of Nazi Germany from 1935 to 1946. It consisted of the Heer (army), the Kriegsmarine (navy) and the Luftwaffe (air force)].

  “II. Starch and Glucose: The starch plant has been completely destroyed, but some of the hydrolyzing equipment is operable and is being used to make glucose from potato starch. The starch is made in another plant, the location and ownership of which were not ascertained, and is produced by the disintegration of the potatoes followed by a settling operation. The yield of starch was said to be 18%, based on the wet potatoes.

  “Glucose is produced by acid hydrolysis of the starch, and a product known as ‘Mytose’ is made by a malt hydrolysis. The plant makes its own malt from potato starch. The capacity for making sugar is 28 tons per day of either glucose or Mytose, the same equipment being used for both. The management hopes to rebuild the plant, installing equipment for both wet and dry milling of corn.

  “III. Production of Soy Flour: According to Director Franke, only 3 firms in greater Germany made edible soy flour and flakes during the war. The C.F. Hildebrandt Co. made 55% of the total production in its Hamburg plant 6 to 7% at its factory in Vorsvelde, near Braunschweig. Another 25% was produced in Vienna by the Wiener Edelsoja Gesellschaft, an I.G. subsidiary; and about 17% was made by the Neue Edelsoja Gesellschaft in Hamburg. Time did not permit visiting any of the other plants except that last-named, but it had been completely destroyed. All efforts to locate the director, Dr. Weis, or any of his associates were futile. The capacity was said to be 15 tons of flour per day.

  “The Hildebrandt plant in Hamburg has been destroyed, but much of the equipment has been saved. It was impossible to inspect it without greatly delaying the investigation, for it was in storage and not readily accessible. The capacity was 50 tons of flour per day and represented an 83% yield of full-fat flour. The beans were cleaned, dehulled, and then heated in an apparatus similar to a stack cooker which reduced the moisture content by 4 to 5%. The plant usually made flour, for which the debittered beans were ground without further treatment, but for making flakes they were remoistened and passed between smooth rolls. Although complete details of the treatment could not be ascertained readily, it was obvious that the method used is simply the Berczeller process and not radically different from that employed in the U.S.

  “At Vorsvelde, only flakes are produced, and they are made from the whole bean without dehulling. The yield in this case is 98%, and the capacity is about 6 tons of flakes per day. At this plant, the beans are roasted in addition to the drying treatment.

  “The Hildebrandt plants operated on Manchurian beans as long as they were available and then processed the European crop until the factories were destroyed in November, 1944. The European beans came from Rumania, Bulgaria, Hungary, and the Ukraine. The total production was about 60,000 tons per year, practically all of which was used for manufacturing edible flour. The flour was all sold to the army.”


- **Summary:** Contents: 1. Austria’s food situation: The country cannot feed itself. 2. The human organism as a motor (with certain fuel / nutritional / food needs). 3. How do we feed ourselves? How to grow enough food when the percentage of agricultural land is constantly shrinking. 4. The soybean (Die Soja) as a nutritional factor: The soybean is the most concentrated foodstuff, and is also called “meatless meat.” Comparison of the nutritional value of soybeans with animal products. Protein and fat.

5. Soya in our kitchen: 20 years ago the use of soya in Austria was promoted in the form of Edelsojamehl (Edelsoja flour), made largely from foreign-grown soybeans. Products now made from soya (dry egg substitute, soybean paste, nuts, almonds, cocoa, coffee). Debittering of soybeans (Sojaentbitterung). How does one cook with soya? Green vegetable soybeans (Gruene Sojakoerner; similar to green peas in the pods), soy sprouts, soya tea. Soybean recipes for 6 people by Frau Friedl Brillmayer (17 pages of Austrian-style recipes). 6. Soybean production in Austria and the possibilities for its expansion: Statistics on increase in planted hectares and number of growers from 1937-1944. 7. Possibilities for industrial uses of soybeans. 8. Soya as a fodder plant: Green fodder, hay, silage, ground soybeans (Sojapflanzenmehl), straw and chaff, soybean cake and extracted meal, industrial waste. 9. The effect on agriculture, the nutrition of the people, and maintenance of their good health: Measures needed for gaining acceptance and success in Austria.

Page 68 notes: “The soybean pioneer in Austria was Prof. Friedrich Haberlandt of Vienna, starting in 1878. His
interest in the significance and relevance of soya for Austria was aroused by the Chinese booth at the Vienna World Exhibition (Wiener Weltausstellung). In the following years he worked successfully to introduce the plant and make it better known. On the basis of extensive variety trials, he confirmed his hypothesis, that the soybean would do well wherever maize (corn) would ripen. In those days, however, the varieties used did not ripen as early as those available today, and because of this the main areas where trials were conducted lay in south Hungary, Croatia [before 1991 a republic of Yugoslavia; the capital is Zagreb], and Dalmatia [a region on the Adriatic coast of Yugoslavia, and a former Austrian crownland]. Haberlandt’s varieties ripened too late to be grown in the area that is today Austria. And since the Monarchy had enough food, the soybean soon disappeared and came to be forgotten.

In 1920 in Austria, after a long pause, the first soya acclimatized in Austria was planted. Once again soybean production began in this country.

Starting in 1921 Prof. Dr. Drahorad and I began cooperative work at Platt in lower Austria (Niederösterreich). The varieties we used were adapted over a number of years using strict selection processes. Then in the following years we initiated preliminary trials in all the Austrian provinces (Bundesländer).

In 1929 the first soybean exposition was held in the banquet hall of the country villa at Linz (Landhaus in Linz), sponsored by the Austrian Department of Agriculture (Landwirtschaftskammer), and there were already more than 100 samples exhibited, all from upper Austria (Oberösterreich).

Up until 1937 about 1,400 farmers in Austria were registered, part of them grew soybeans experimentally and part of them expanded their production area year after year.

But there was no ready market. Soya was so cheap on the world market, that its production in Austria was not profitable. The world market price dropped to its lowest level in 1933, £6.07 sterling per tonne! The unassuming and easily the world market, that its production in Austria was not part of them expanded their production area year after year. Up until 1937 about 1,400 farmers in Austria were registered, part of them grew soybeans experimentally and part of them expanded their production area year after year.

In 1937 in Austria, only 16 farms (Betriebe) grew 68.14 hectares yielding 83,521 kg of soybeans (1,226 kg/ha). In 1940 this increased to 315 farms growing 1,526.99 ha yielding 957,809 kg of soybeans (627 kg/ha). In 1944 868 farmers grew a record 2,461.17 ha of soybeans (production not given for 1944). The four main growing areas, in descending order of number of hectares grown in 1944, are: Lower Austria and Burgenland 1,311.67, Kaernten and Steiermark 71.54, Vienna 46.27, and Upper Austria 1.24. The climate in Austria varies widely from region to region. Production is measured in units of Doppelzentner (dz); 1 Doppelzentner = 100 kg. In 1943 the best yield in one region was 28.00 dz/ha (2800 kg/ha or 41.6 bu/acre) in Lower Austria. The best yields per region rose from 2,100 kg/ha in 1937 to 2,800 kg/ha in 1943, both in Lower Austria.


(4) Photosynthesis drives the human motor (p. 13). (5) The human motor needs carbohydrates and protein. (6) Austrian population in 1875 was 61% rural, 33% towns, 6% cities; in 1900 46% rural, 28% towns; 16% cities; 1925 was 36% rural, 37% towns, 27% cities (p. 25). (6) In 1942 about 150,000 ha of soybeans were planted in southern Europe. In the USA it was 1,389,000 ha in 1940, 3,960,000 ha in 1941 and 5,660,000 ha in 1942.

(7) Composition of the soybean shown graphically (p. 33). (8-9) The many different foods that can be made from the soybean (p. 44 & 67).

(10) Increase in soybean cultivation area and production of the Soya Ring (Sojaring) (in hectares) from 1937-1944 (p. 72-73; see above). (11) Industrial products that can be made from the soybean (p. 83).
Photos: (1) A single soybean plant, with pods, of the Austrian breed *Platter 458* (p. 30). (2) Austrian soybean varieties being raised in the Platt breeding nursery and several experiments are underway (p. 69). (3) Trials with varieties, row width, and time of planting in Casablanca, Morocco. Two white house (one having two stories) are visible behind the fields of soybeans (p. 70).

(4) A soybean purification and drying facility. The next step will be to process the soybeans into soy oil and soybean meal at the factory of Dr. Winkler & Co. in Vienna, XII, in the year 1946. (5) Making soybean silage (p. 77). (6) A soybean debittering apparatus (p. 78).

(7) Hydraulic presses with which part of the oil is pressed from the soybeans. (8) Lehmann milling machinery. (9) Soybean cleaning equipment; an aspirator (p. 81).

(10) One of the large soybean meal warehouses in which meal is stored in sacks. (11) Round, pressed soybean cakes. Half of the oil remains in the cakes and, after milling, ends up in the meal (p. 82). (12) High-growing fodder soybeans, suited for making hay or silage. A smiling lady with two long braids, holding up a rake in her right hand, stands waist-deep in the tall plants (p. 88).


*Summary*: Contents: Introduction. 1. Origin of the soybean (in Asia and Europe, including the work of Haberlandt in central Europe, plus instructions for making Chinese-style chiang, soy sauce, and tofu). 2. Description of the soybean. 3. The culture of the soybean. 4. Diseases and enemies of the soybean. 5. The economic significance of the soybean: As a food, as an oilseed, and in applied science/industry. 6. Advantages of the soybean: For the farmer, for the economy. 7. Effect of soybean culture on the national diet. 8. Tested recipes for the household. Conclusion. Address: Friedersdorf & Berlin.


*Summary*: Contents: Foreword. 1. Soybeans and nutrition. 2. What does the soybean look like? 3. The soybean—commercial products (Edelsoja whole soya flour, soy flakes, soy oil, soy margarine, soy lecithin, soymilk and tofu [these were once made by a German firm in Frankfurt], soy sauce, Worcestershire sauce, soy chocolate and cocoa). 4. Soybeans in the household (incl. the above commercial products plus soy coffee, soy sprouts). 5. Growing soybeans on farms and in home gardens. Hope for the founding the “Society of Soybean Producers and Friends of Soya” (*Gesellschaft der Soja-Anbauer und Sojafreunde*). 6. The different methods of soybean production. Growing soybeans in a small garden.

On page 15 the author uses the term “Sojaspeisen” to refer to soyfoods. On page 17 he uses the term “Gruenbonen” to refer to green vegetable soybeans. Address: Herwegstr. 5, Stuttgart, Germany.


*Summary*: “A few days ago I had the opportunity to talk with Dr. Berczeller personally. I had not seen him for many months. He is in bed and very weak and nervous, and sometimes incoherent. He complained of the food in the hospital, and I surely wish it were possible for the American Soybean Association to send him CARE packages regularly. Since at present we have no CARE packages available in Paris, we are quite worried about our inability to supply his needs for extra food... We still have about $40 of the last $100 sent Dr. Berczeller from America. When this sum is exhausted, we will not have very much possibility of helping him financially, unless we take money from our individual services funds.” Address: Quaker International Center, 17, rue N. D. des Champs, Paris.


*Summary*: About Clifford E. Clinton, Meals for Millions, and Multi-Purpose Food. “It was H.G. Wells, I think, who said that all the world’s progress, throughout human history, has come from the work done by strangely few persons.” Clifford Clinton was born in Berkeley, California, in 1900, the eldest of 9 children. His parents were both devout Christians and active in the Salvation Army. They went to China and set up their personal mission there. Clifford went too and saw abundance and starvation. In the middle of his high school life in America his mother died; he left school and went into the restaurant business with his father. At age 25 he was manager of all six of his father’s flourishing cafeterias. Two years later, with two of his relatives, he bought his father out and set up his own company, the Clinton Co., Inc. Today he has become a successful businessman. “The marvel is that all this success has been achieved in the most impractical and even preposterous fashion. Clinton believes in the Golden Rule to such an extent that he actually practices it...

“In 1931 when he opened his Pacific Seas Cafeteria, *Clifton’s*, in Los Angeles, a motto was printed on each meal check. It read: ‘Regardless of the amount of this check our cashier will cheerfully accept whatever you wish to pay or you may dine free.’ In spite of prophesies of failure, the
One of Clinton’s dreams is to see that everyone in the world is well fed and well nourished. Not satisfied with his 5-cent meal, he set out to develop a 3-cent meal. “He enlisted the interest of a first-rate scientist, Dr. Henry Borsook, of the California Institute of Technology, who volunteered his services, to help. Dr. Borsook took the soybean, that prime source of protein for so many millions in Asia, and from it he developed by very simple means a food which when produced in quantity costs only three cents for a hearty and nourishing meal... He engaged the interest of an expert, Madame Soulange Berczeller, to season his three-cent meal.”

“To extend its values to a hungry world, Clifford Clinton set up, in 1946, the non-profit Meals for Millions Foundation, ‘dedicated to the prevention of starvation.’ He and a few of his business associates each pledged $10,000 to launch the Foundation. Headquarters were donated at 648 South Broadway in Los Angeles.”

“Gifts and membership fees have made it possible to distribute more than 15,000,000 meals of Multi-Purpose Food through relief agencies operating in more than 60 countries.”

• Summary: “An appeal for aid for Dr. Ladislaus Berczeller, noted Hungarian scientist, who pioneered the development of soy flour, comes to the office of the American Soybean Association from the American Friends Service Committee [Quakers]. Dr. Berczeller is in ill health and confined to his bed in a Paris hospital where he is dependent on relief funds for his welfare. Since there are huge numbers of refugees in France public funds are not able to maintain him on more than a bare subsistence level.

“It is ironic that the man who invented soy flour that now plays so large a part in the relief of want should now himself be in want... Your contributions should be sent to American Friends Service Committee, 20 S. 12th St., Philadelphia 7, Pennsylvania.”

• Summary: Discusses the work of L. Berczeller, plus various patents. Address: Quimico Industrial, Brazil.

• Summary: Discusses the pioneering work with soya done by six Europeans:

“A. Urbeanu was a medical doctor in Bucharest, Rumania, at the beginning of the 20th century. From his work with countless patients he came to the conclusion that insufficient nutrition was the reason for the backwardness of his nation; that lack of protein was the cause of the nationwide lack of energy, the poor labor output and low living standard. He decided that the manufacture of palatable cheap protein foods from home-grown soybeans could raise his people’s living standards and place his beloved Rumania among the civilized nations.

“In 1905 Urbeanu published the first Rumanian booklet on soya. It recommended the bean for systematic fortification of the national diet. He emphasized that the Rumanian farmer did not have more than half of the daily protein requirement. He pointed out that the composition of the mature soybean is very similar to that of foods of animal origin, and therefore can well fill this gap in the diet.

“Urbeanu’s publication was the first suggestion of a complete soya project in Europe that included growing and processing the bean to make its fats and proteins available for human nutrition. Little attention was paid to it. Its ideas were too strange. Maybe the lack of suitable varieties and of experience in breeding and growing as well as processing soybeans contributed to the failure.

“Thirty years later the Rumanian government successfully developed a large-scale soybean-growing program, for export. Preliminary tests were made in Rumanian hospitals to cure diseases caused by protein deficiencies. Political events smashed this project before the crop became extensive enough so that part of it could be consumed at home.

“Urbeanu was undoubtedly influenced by Friedrich Haberlandt’s booklet [sic, book], Die Sojabohne. Haberlandt, an Austrian botanist, was the real founder of soybean work in Europe.

“He noticed the soybeans at the Vienna World Exposition in 1873, and procured seed there for planting in test plots at the High School for Soil Cultivation in Vienna. The seed consisted of 19 varieties from China, Japan, Tunis, and Transcaucasia—one each from the latter two countries.

“Some of the plots were successful. Haberlandt soon had co-workers growing soybeans widely in Europe. By 1877 there were 144 soybean test plots in addition to those in Vienna. They were scattered from the Puszta in Hungary to the Atlantic Coast, and from the Baltic to the Adriatic Sea.

“Haberlandt died in 1878 and with him his work—except for his book with its continuing influence on work with soybeans in Europe; and some of the beans that he had
distributed. In recent years French soybean literature has referred to varieties in Spain that were called “Haberlanda” by the producers there. Haberlandt cooperated with Heck the physiologist to study the usability of the soybean for human food. They developed a potato-soya dish that their families and professor-friends ate with relish. Haberlandt wrote in his book that “this combination offers to those who have to save on food, the content of nitrogenous nutrients that are needed in the diet...”

“Laszlo Berczeller was a doctor in Budapest, Hungary, some 20 years after Urbeanu. Like Urbeanu he was driven by his experience with his medical practice to seek better protein nutrition for the people.

“By that time soybeans were grown, to a small extent at least, in his country, also Serbia, and other parts of the former Austrian Empire. They may have been the offspring of Haberlandt’s seeds.

Berczeller learned “how to remove the disagreeable taste of the raw bean. He discovered the principle of combined moisture and heat treatment to make the bean and its products palatable. And he became known as the discoverer of soy flour.

“But his discovery remained in the primitive stage until Austrian, German, French, and other factories began to process the bean commercially to produce full-fat and defatted soy flour, grits and flakes for human consumption.

“Urbeanu and Berczeller set two of the first signposts for the long road on which the soybean is still moving to become a staple ingredient in the daily diet of Europe. Both men clearly saw decades ago the central problem of modern European nutrition. Both worked in and for two of the unfortunate nations that are now blocked from participation in the progress and welfare of the free world. It is a sobering question whether the fascists and bolsheviks would have been able to swallow the two countries if Urbeanu and Berczeller had been listened to by their contemporaries. Both men worked hard to assure regular protein at low cost for everybody. Their aim was to strengthen resistance to contagious diseases, and also to those modern epidemics that we call political radicalism.

4. “Paris was the scene of another remarkable soybean play. Li You Ying [Li Yuying], famous Chinese soya specialist, and Dr. L. Grandvoinnet started a factory in Paris and invaded the famed ‘Cuisine Francaise’ with soya products of Chinese style, such as tofu, miso, soy milk, soy sauce, and so on. Great was their enthusiasm and greater still the failure. More extreme opposites can hardly be imagined than the French and Chinese tastes. There was only one product of their promotion that eventually conquered the market. It is shoju [shoyu; Japanese soy sauce], the tasty, spicy, delicious soy sauce. Li You Ying and Grandvoinnet also left traces in European soya history, in the form of a book. It was published in 1912 and was an excellent monograph. It could not fail to interest other people who were at work on the same problem.”

A small photo shows Dr. Berczeller reading a book at a desk.


• Summary: “To the editor: On Easter Sunday Prof. F. Verzar of the University of Basel invited my wife and me to accompany him in visiting a former Hungarian scientist now confined in a French mental hospital with several hundreds of foreign insane.

“Much to my surprise the patient proved to be L. Berczeller whose name I have known for years because of his pioneer work in developing methods for the manufacture of soy flour. He has been bedridden for nearly two years and imagines himself to be kept in this mental hospital so that others can steal his secrets for making improved forms of soy flour.

“His whole conversation centered on the problem of how to make available to every person in the world 50 grams of soy products daily. He believes this would end all wars because men would then have enough protein. He told me that his extensive library had long since been lost and he knew nothing of the whereabouts of the 10,000 volumes that he formerly owned.

“He lies in a clean ward but is surrounded by 30 other patients who must use the one toilet about 25 feet from his bed. The other patients were quiet during our visit because it was noon and they were eating dishes of soup and huge chunks of dark wheat bread.

“Today Berczeller lies buried in the hospital but there is one bright spot in the picture. He has two friends who have been working for months to get him moved to a better situation where he would be surrounded by more rational patients. One of these friends is a Jesuit priest and the other is a Protestant professor. Berczeller himself is Jewish.

“Professor Verzar has asked me if I thought anyone in the soy industry would be willing to contribute toward housing Berczeller in a private hospital in Switzerland. He says this can be done for about $5 per day.

“I told him that I was very pessimistic about any altruism from the soy industry since I had long worked with their products and had never had the slightest assistance from them. I told him I believed this industry even lacked self-enlightened interest but that I would be glad to present this picture for publication in the Soybean Digest. Possibly there might be someone in the industry who may feel some indebtedness for the advances made by Berczeller.”

Editor’s note: “Dr. McCay was instrumental in developing the well-known ‘Triple Rich’ high protein loaf [which was fortified with soy flour]. Dr. Berczeller is often called the discoverer of soy flour. Several years ago the Digest made appeals to our readers in his behalf, also personal appeals were made to the many people in the
soybean industry. As a result a substantial sum of money was placed at Dr. Berczeller’s disposal. That it was not enough to relieve his need is obvious from Dr. McCay’s letter. We will see that any further contributions are sent to the people in charge.—Editor.” Address: Prof. of nutrition, Cornell Univ., Ithaca, New York.

228. **Product Name:** [Nurupan (Whole Soy Flour)].
**Manufacturer’s Name:** Edelsoja GmbH.
**Manufacturer’s Address:** Hamburg, West Germany.
**Date of Introduction:** 1955.

• **Summary:** A photo shows soybeans in a spoon, on a plate, and in a can, labeled Edelsoja–GmbH, No. 97/37. The article states that Edelsoja is a full-fat, debittered soy flour (ein vollfettes, intbittertes Sojamehl).

A map of the world shows the major soybean producing countries. A black circle next to each is proportional in area to the soybean production of that country. The three main producers are (1) USA. (2) Manchuria. (3) China. Address: PhD, Bonn, West Germany.

• **Summary:** This company sells soybeans for the production of soymilk, soya quark (Sojaquark = [tofu]), and soy sprouts. It also sells Edelsoja powder, ready for use in cooking. Direct delivery or via distributors. Telegram address: Edelsoja.

Note 1. This is the 2nd earliest German-language document seen (June 2016) that uses the word Sojaquark to refer to tofu (one of two documents).

Note 2. What company is making these Edelsoja products and how did they get the right to use that name?

Laszlo Berczeller is no longer living; he died on 14 Nov. 1955 in Switzerland. Address: Duesseldorf 1, Birkenstrasse 41, Postfach 8004, Germany. Phone: 66 34 61.

• **Summary:** Contents: Introduction. Fresh soymilk for every household. Acidophilus-soymilk (Sojaquark). Tofu.

Tables show: (1) Nutritional composition of soymilk (Sojamilch). (2) Nutritional composition of tofu (Sojaquark; Tofu).

Note: This is the 2nd earliest German-language document seen (June 2016) that uses the word Sojaquark to refer to tofu (one of two documents).

Photos show: (1) Edelsoja-GmbH soybeans (Sojabohnen) No. 97/57. (2) From the soybean to soymilk. (3) An electric blender; an appliance which can be used to transform soaked soybeans into soymilk at home. The soymilk can then be made into chocolate pudding or vanilla sauce. (4) Soymilk with a little vinegar added as a curding agent. After pressing the resulting Quark does not taste sour at all. (5) After it is pressed in a linen sack, Sojaquark / Tofu is known as the meat without bones (Fleisch ohne Knochen). Address: PhD, Duesseldorf, West Germany.

• **Summary:** Note: This is the best biography seen of Dr. L. Berczeller. It is also the earliest French-language document seen that uses the term “le soja alimentaire” in the title to mean “soyfoods.”

Contents: 1. Introduction: Dr. Berczeller. Our relationship with Dr. Berczeller. His difficulties. His place of burial. The divisions of this paper. Remarks.


III. The big questions and projects: The problem of protein nutrition worldwide. Statistical and econometric studies. The International Laboratory for Nutrition. New
protein foods.


Dr. Laszlo Berczeller, a Hungarian biochemist and physician, of Jewish origin, was born in Budapest in about 1885. He died at the Maison de Santé Nationale de Saint-Maurice, near Paris, in 1955 [Nov. 14]. In 1922 Berczeller discovered a physico-chemical process for treating the soybean (Haricot de Soja) which permitted the introduction of this legume, very rich in high-quality protein, into the foods of the western world. He dedicated his entire life to this great question and he must be considered as one of the principal scientific founders—perhaps the main founder—of the soyfoods industry (de l’industrie du soja alimentaire). He was also a pioneer in the statistical and quantitative study of the agricultural and food economy of various countries. He wanted to treat the problem of world protein shortages scientifically, and in its fullness.

In 1932 Dr. Berczeller asked us [the author] to present his works to various scientific organizations. One of the principal objectives of the development of food uses of the soybean would be the introduction of 5% soy flour into the bread of the French army. Since that time we have kept in close touch with him. In 1939-40 we studied with him the questions about soy for the CNRS (Centre National de la Recherche Scientifique) [a very prestigious and serious organization in France] and the military commissariat (Intendance Militaire). In 1945 we took up these questions again. We are familiar only with those activities of Dr. Berczeller’s which pertained to France, so we have been able to give only a partial account of his life. Hopefully this will inspire others to write the complete story of his life.

Dr. Berczeller encountered many human difficulties in his work of developing soy flour. He had to undergo very severe battles for his patents, being victorious before 1934 in Central Europe and in Germany. But he lost his rights to this process in Great Britain, the Netherlands, and the USA. At that point his name and his scientific titles were practically smothered by his industrial adversaries who, by now, had become very powerful. He died completely unknown. He received a temporary burial at the cemetery of Saint-Maurice near Paris until 17 November 1960. The author is working to get him a decent place of burial by contacting people worldwide. That is one purpose of this article.

II. Soya as a food: The light toxicity of soybeans has been the main cause of the numerous setbacks suffered by soyfoods in Europe, for example in the British army in 1917. In 1922 Dr. Berczeller discovered a physico-chemical process, based on the action of steam and temperature, which resolved in one stroke all of the difficulties: toxicity, flavor, taste, digestibility, stability / storage life, etc. He perfected this process in the following year up until 1936.

The author then lists 11 European (British, Austrian, French) and U.S. patents concerning soybeans issued to Berczeller from 1921 to 1932. We have cited each separately.

Worn out by sterile fights over patents, he did not publish his later discoveries [for improving soy flour processing] but kept them secret.

He studied and resolved a number of technical problems connected with soy flour production: Special milling techniques, nutritional studies, studies on the psychology of flavor, utilization of by-products, and non-food uses of soy proteins (especially adhesives). He launched factories for the production of this flour in Hungary, Germany, the Netherlands, Great Britain, etc.

He was interested in medical uses of soy flour, which he found to be excellent for growing infants, and diabetics. Prof. Gonnelle of Val-de-Grace showed in 1944 that 1 kg of soy flour will cause an undernourished person to gain about 1 kg in weight. These medical advantages were known for a long time but because of the difficulties in using soya as food, they were not carefully studied until Berczeller’s soy flour became available.

For ‘Kwashiorkor,” the modern name for symptoms and syndromes of undernutrition in warm climates / tropical countries he had a direct and complete remedy: use of the soybean and soyfoods. Berczeller understood this as early as 1932, and perhaps even before that.

For soya to be used rapidly and on a large scale, it must be included directly in commonly used foods. Berczeller studied methodically European foods adapted to soy flour. With the help of specialists he developed recipes for many food items and dishes. Most of these recipes could be made into industrial / commercial food products such as bread, biscuits, macaroni, chocolate, pastries, tidbits, sausages, soups, sauces, mustard, etc.

His sales and marketing organization in Berlin, “Edel Soja” (Noble Soya) was supplying such products as early as 1932 and perhaps even before. Their excellent quality was recognized by all. The American food industry supplied them in large quantities, and since World War II, worldwide. Continued. Address: Former student of the Ecole Polytechnique, Engineer of Roads and Bridges, retired (Ingénieur des Ponts et Chaussées, E.R.).

Summary: Continued from page 159: Soy flour has numerous practical advantages. It adds stability and shelf life to breads. Containing very little water, it is lightweight and easy to transport. It is extremely versatile, for use in many foods and dishes. It also has special uses, in war provisions and relief foods for refugees. Because of its light weight and nutritional density, it was used as a foodstuff by German skydivers/parachutists.

III. The big questions and projects: Berczeller was interested in the problem of world protein shortages. Germany had long had a serious deficiency of protein and fat, which could be corrected by soy. Germany imported about 1 million tons of soybeans before the war, and these soybeans were largely treated by the Berczeller process—which was a triumph. Russia experienced grave famines in about 1926, as well as at other times. So Russia turned to the soybean and cultivated it on large expanses of land. Dr. Berczeller traveled to Russia in about 1927 to create a modern soya industry there. North Africa and black Africa suffer from undernutrition and protein malnutrition. Soybean cultivation and a soyfoods industry would offer a solution to the problems of the entire continent.

In 1936 the Maharaja of Baroda [Maharaja Sayajirao Gaekwad III] understood well India’s protein problem and had a book published on soya by Indian physicians. But they ignored the decisive progress made by Berczeller, so they were not able to develop utilization of soya that was properly treated. Berczeller was thinking as early as 1932 that introducing the food use of soya to India would be the main human goal of his life.

Even before 1932 Dr. Berczeller saw—at an early date—the great question of world protein supply and undernutrition. He studied the problem of the balance of nutrition and food in Germany scientifically. In 1932, Dr. Berczeller met F. Arnould because he took interest in the general econometric studies done by F. Arnould; this became the basis of their relationship [thus F. Arnould seems to have been an economist]. Thus Dr. Berczeller was a pioneer or precursor in the field of agricultural and food econometrics.

He was very interested in various international organizations. He foresaw the need for an organization or international laboratory for the study of nutrition and food. From 1932 he told us that he would like to donate his fortune—which was very large—to such an organization.

His ideas and goals were a perfect match with those of existing organizations, the International Institute of Agriculture (Rome) before 1939, and the Food and Agriculture Organization [FAO] after World War II. Particular circumstances—and perhaps even occult occurrences—impeded the development of his works under this normal framework. He was interested in new protein sources, such as yeasts, and in the synthesis of amino acids and even poly-peptides.

IV. The life of Dr. Berczeller: Documents and personal accounts (p. 161):

We know directly about only one part of his life and work—just the general and broad events, and only a fraction of the details.

We would like to gather the documents, accounts, opinions, and even critiques—from the many people who knew him. By indicating specific events from his very active life, we hope to make it easier to search for complementary elements and encourage those who knew him to add what they know.

First, we will first sum up these events in chronological order.

Chronological summary: Dr. Berczeller told us that he got the idea to study soybeans (le soja) in 1912 following a soy dinner (diner au soja) at the Japanese embassy in Berlin. He was indisposed, with a headache. The slight toxicity of the soybean struck him as a very important question.

He already specialized in nutrition, and during the war of 1914-18, had served as an expert to the Austro-Hungarian government. However, he had studied many other subjects with the Austro-Hungarian scientific general staff.

Around 1918-1920, he worked in the laboratory of Dr. Wassermann studying blood proteins.

It was around 1921-1922 that he invented his soybean-processing process. He received help from the laboratories at Skoda Works in Czechoslovakia (today’s Czech Republic and Slovakia).

In about 1924, Winston Churchill published articles in favor of soyfoods (soja alimentaire) in The Times. A soy dinner was held by the British Empire League in London, with Mr. Churchill in attendance.

In 1926, Dr. Berczeller went to Russia to organize the soybean industry; there he was named Honorary General of the Red Army (Général honoraire de l’Armée Rouge). He returned to Russia in 1930.

In Germany, his patents were used by Hansa Muehle, a large oil mill in Hamburg. His products based on soy flour-based (à base de farine de soja) were sold by the Edel Soja company in Berlin.

In England, soy flour was produced by the Soyolk company in Rickmansworth, near London. However, a legal battle (procès) ensued between the company and Dr. Berczeller. He lost this lawsuit around 1930.

A soy flour factory was also built in Holland. Dr. Berczeller first proposed introducing soy flour into the human diet to the French government as early as 1929. We repeated these proposals at the Quai d’Orsay [headquarters of the French government] in 1932 in the company of Dr. Berczeller.

To promote the introduction of soy flour into the diets of large organized groups of people, and armies in particular, Berczeller went to see the highest officials, including Joseph Stalin, Benito Mussolini, Miss Dorothy Thompson, and...
President Franklin D. Roosevelt’s secretary [Marguerite LeHand].

From 1929 to 1939, Dr. Berczeller traveled extensively in Europe to study nutrition on site: in Romania, Bulgaria, Yugoslavia, Italy, Portugal, etc. He often stayed in Great Britain, where he studied the countries of the British Empire.

Dr. Berczeller in France: In 1932, Dr. Berczeller asked us to present his work on soybeans in France, but the agricultural situation was not conducive to using his developments. France was in the midst of an agricultural overproduction crisis, with too much wheat, too much meat, too much milk, etc.

Lieutenant-Colonel Bruère, head of the Laboratory of Substances Supply Offices (Laboratoire des Substances de l’Intendance) said to us, “You will not be successful now, but keep this file and reopen it when the war breaks out.” His prediction was fulfilled. In October 1939, we asked the applied National Center for Scientific Research (Centre National de la Recherche Scientifique, CNRS) to invite Dr. Berczeller to come to France. He arrived in Paris via Geneva, with an introduction from the secretary general of the League of Nations, Mr. Aveline [sic, probably Joseph Avenol].

We worked in Toulouse in 1939-1940 for a soybean-growing program in the south of France, while Dr. Berczeller studied the introduction of soybeans into army nutrition in Paris, at the CNRS.

However, in June 1940, the defeat [of France by Germany] interrupted our work. Dr. Berczeller retreated to Toulouse.

After the Armistice, soy flour could have been of great use in France to feed children. We could have had some shipped from the United States, but this was impeded by human and political complications.

Dr. Berczeller left for Marseilles, and we lost touch with him. But we found him again in Paris, after the Liberation [spring 1945]. We then tried to have soy flour shipped from the United States in 1945, to feed the deported persons returning from the German camps. Unbelievable blunders made by state officials thwarted our efforts. Many Liberty Ships loaded with soybeans came to France, but people did not know how to process these products. In the end, they were fed to pigs.

The attitude of CNRS: Dr. Berczeller met with all kinds of difficulties in France after the Liberation. Ruined, unappreciated, poorly received, old and ill, he eventually lost his stability and was no longer able to conduct his very complex and delicate affairs and studies.

He was hospitalized at Lariboisière Hospital (Hôpital Lariboisière), and then sent to various psychiatric hospitals.

The CNRS played a serious role in Dr. Berczeller’s unfortunate demise, through its misunderstanding and the false information it disseminated. A whole book could be written about Dr. Berczeller’s misadventures in the French scientific community.

The Quakers: In July 1940, we presented Dr. Berczeller to the Quaker Aid Service, which had a branch in Toulouse.

With them, we were to study the importation of soyfoods (aliments au soja) for children, which were produced in America.

Dr. Berczeller remained in contact with them, and the Quakers helped him a great deal. They sent for conclusive information from America that supported his position. They went to the Presidency of the Council (Présidence du Conseil) in France to ask for justice, but without success.

At the Saint-Maurice Mental Home (Maison de Santé de Saint-Maurice): In 1952, Professor Veznar from Zurich was able to obtain a place for Berczeller in the Saint-Maurice National Mental Home. The head doctor of this establishment, Professor H. Baruk, was very devoted to his care. But he could not halt the progression of an already very advanced heart disease. Dr. Berczeller died in Saint-Maurice on 14 November 1955.

Note: Translated by Elise Kruidenier, Seattle, Washington. And by Martine Liguori, Walnut Creek, California. Continued: Address: Former student of the Ecole Polytechnique, Engineer of Roads and Bridges, retired (Ingénieur des Ponts et Chaussées, E.R.).


• Summary: Continued from page 164.

Dr. Berczeller’s character–Interest in his character: Dr. Berczeller was certainly very noteworthy, both intellectually and morally. His ambitious program for the scientific study of protein foods and the general food economy was a projection of this personality on the social reality of the whole world.

He achieved success in this field from a scientific and technical, as well as a practical perspective. Concerning the future, he was very forward-thinking and discerning. He acted as a sort of hero and prophet for today’s immense crisis of underfed and underdeveloped countries, while providing one of the scientific keys to solve it.

We therefore feel that his life’s story and personality are of interest those who engage with these great modern questions.

Curiosity: Dr. Berczeller’s knowledge was very broad, not only in fields related to his specialty, but also in many great human concerns such as history, politics and art. His curiosity was insatiable. He read a great deal, and very quickly. In addition to Hungarian, he spoke German, English and also French, but with some difficulty.

His publications: We have a list of titles of articles and other documents published by Dr. Berczeller (around 280),
but it would be too long to add to this article. As a sample, we will add a photo of the first page of this list, indicating the titles of the scientific reviews in which these articles are located. Until around 1923, he conducted research in biochemistry, and more specifically on blood, proteins, colloids, the Wassermann reaction, cell sedimentation, oxidation phenomena, etc. Then, he devoted himself primarily to the topic of soybeans. However, he produced many other studies, inventions and invention projects that were not published.

Biometrics: Dr. Berczeller was interested in broad scientific questions. As early as 1932, he foresaw the development of biometric methods, even though he was not a mathematician. He encouraged us down this path of study, which was still in its infancy.

Furthermore, all of his research in agricultural and nutritional geography was guided by these general scientific ideas. It logically led to agricultural econometrics.

The general organization of the sciences: The great disorder of the modern sciences was clear to Dr. Berczeller, and he worked towards possible solutions. He also studied documentation problems and documentology. He introduced us to Paul Otlet, president of the Brussels International Bibliography Institute (Institut International de Bibliographie de Bruxelles).

In 1940, he was still saying that he would like to have the time and opportunity to write a book on these general concerns and the views he had formed on them.

The great generality and scope of his thoughts seemed to us to be one of his most valuable characteristics. It was what led him to address and prevail over this immense problem of world nutrition.

International business: As we have already mentioned, Dr. Berczeller was very interested in international business and international organizations. He explained his ideas on these topics to us in 1932, when he was in London. At that time, London was the center of worldwide trade and ties with the underdeveloped countries of Asia and Africa.

Up until the end, he retained a strong faith in the possibilities of international organizations and the potential of an international perspective over that of individual states.

Jewish origins: When Dr. Berczeller withdrew to Toulouse in June 1940, at the time of the Armistice, we learned that he was of Jewish origins, from a wealthy family of Jewish doctors and hospital benefactors from Budapest. Up until then, we had not been aware of this. In 1934, Dr. Berczeller had to separate from his wife, Mme. Selma Berczeller, who was a German Aryan and pro-Nazi.

Berczeller never spoke of his Judaism. He seemed more drawn towards Protestantism. But we saw that, during the war period, he maintained a keen sense of his origins.

In Great Britain: We met with Dr. Berczeller in London at the “Individuality Bookshop,” a small bookshop for British Conservative Party propaganda.

Berczeller lived in London for a long time. He liked the British lifestyle, its institutions and its liberalism. In 1932, he was in contact with many members of the Conservative Party, which was considering a European food policy. To us, he seemed very close intellectually to the great Jews who did so much in the 19th and 20th centuries for the British Empire: Lord Beaconsfield (Benjamin Disraeli), Lord Reading (Rufus Isaacs), Sir Philip Sassoon, Sir Oswald [Alfred?] Mond, etc.

He could also be compared to David Lubson, a Polish Jew who made his fortune in the United States and then, in 1902, founded the International Institute of Agriculture in Rome with Italian King Victor-Emmanuel.

His rights in Germany: In 1947, Dr. Berczeller told us that he held considerable patent rights for soybean-processing processes in Germany. He estimated they were worth five million pounds sterling. Hitler had completely dispossessed him of them. But after Hitler’s fall, it was possible for him to reclaim these rights in full as a Jew.

He searched in Paris for lawyers to uphold these rights, but to no avail.

Because he was single and without children, he wanted to donate his fortune to his project of an International Laboratory of Nutrition (Laboratoire International de Nutrition).

We have no proof of this very considerable fact. His mental state was such that we are not sure of the statements he made, and we remain cautious about this. However, Dr. Berczeller always told us the truth when he was in good health. It is very possible that this assertion about his very large fortune was true.

Collaborators and friends: Dr. Berczeller worked or communicated with a great number of people in various countries.

We will provide a short list of some of them, but many of these people have passed away.

We will also indicate the various institutions with which he worked. These institutions contain people who knew him.

List of organizations and people with whom Dr. Berczeller was in contact:

Budapest: University of Budapest (where he was a professor). Royal Hungarian Institute of Chemistry. Professor Alfred Savecker [Schwicker?]. Budapest experiment station of veterinarian physiology–Dr. Stephan Weiser.

Vienna: Food Institute of Vienna–Professor F.A. Richter. Institute of Physiology–Pr. A. Durig and Dr. H. Wasl. Institute of Pharmacology: Prof. Wasicky, Dean: Ernest Kupelwieser [sic, Kupelwieser], Prof. Zederbauer, Dr. Hugo Glaser, Dr. Harnish, Dr. H. Prinz, Dr. Alfred Schneiker [Schwicker?], Frau Herta Spring–president of the Federal Austrian Women’s Associations (Bundes Oesterreichische Frauen vereine). Frau Olga Hess, director of the Federal College for Economic Women’s Occupations (Bundeslehranstalt für wirtschaftlicher Frauenberufe).
Dr. Leopold Mall, director of the Imperial Institute for the Welfare of Mothers and Infants (Reichsanstalt für Mutter und Säuglingsfürsorge). P. Frankfurter, expert in baking.

Prague: Prof. D. Stoklasa, Prof. Mayerhoffer, Skoda Works.

British Empire: Royal Empire Society—Miss Eddie A. Hornibrook. John Freud, physiologist at University College, Cork, Ireland. Prof. I.R. Parsons, Prof. of Medical Research, McGill University Clinic, Montreal [Quebec], Canada.

We have the solemn duty, made more pleasant by the sentiments of an old friendship, to contribute to the biography of this scholarly doctor and biochemist, and to attempt to revive his great, little-known figure. Through the goodwill of those with ties to the history of medicine, he can be given posthumous justice.

Note: Translated by Elise Kruidenier, Seattle, Washington. Address: Former student of the Ecole Polytechnique, Engineer of Roads and Bridges, retired (Ingénieur des Ponts et Chaussées, E.R.).


• Summary: "We in Soya Foods Ltd. had no knowledge of Dr. Fearn amongst our own records. Our parent company, Messrs. Spillers Ltd. looked back through their records, and I am enclosing a brief summary of the Soya Flour Manufacturing Co. Ltd., which was finally dissolved on 27 Oct. 1942." The company was purchased by Messrs. Spillers Ltd. Note: The telegram code is "Soyolk." Directors are N.A.H. Kitchener, and R.F. Page.

"Soya Flour Manufacturing Co. Ltd.: This private limited company was formed on 21 Sept. 1928 with an authorised capital of £5,000, of which £2,000 each was allotted to J.C. Ferree and C.J. Ferree, both described as Rubber Merchants of Dutch Nationality. They, with Dr. Hans Pick, an Austrian analytical chemist of Vienna, formed the original board.

The following is handwritten in pen: “Berczelsius [sic, Berczeller] of Austria (?) started first soybean process.”

“The authorized capital was increased in April 1929 to £10,000, and in March 1930 to £25,000. In the return dated 31st December, 1930 the name of Dr. C.E. Fearn, 18 Talbot Road, London. W.2., appears as a director, apparently in place of Dr. Pick. In a subsequent document Dr. Fearn, a doctor of medicine, was described as ‘Technical Manager,’ but his address was given as 523 East Sixteenth Street, Brooklyn, New York, U.S.A. He had been allotted 100 shares, but by 31st December, 1931 his name has disappeared from the list of directors, which then comprised only the two Ferree brothers, each holding 9,000 shares.

“The Registered Office was moved in June 1932 to Springwell Flour Factory, Springwell Lane, Rickmansworth, Herts, and a series of First Debentures began to be issued, totalling £2,500 eventually. By October 1932 a firm of chartered accountants D.C. Evans of 44 Gresham Street, E.C.2. were appointed Receiver and Manager for the Debenture Holders, and on 12th December, 1932 a Compulsory Winding-up Order was made on the petition of Southgate Brokerage Co. Inc. of Norfolk, Virginia, U.S.A. J.R. Stephens of 4 London Wall Avenue, E.C.2., was appointed liquidator and filed annual accounts of the progress of the liquidation. The Receiver and Manager for the Debenture holders ceased to act on 14th October, 1935, and the company was finally dissolved on the 27th October, 1942.” Address: Director, Soya Foods Ltd., Colonial House, 30/34 Mincing Lane, London, E.C. 3, England. Phone: Mansion House 9052/3.


“Oriental soy foods:... In the Orient soybeans have, for centuries, played an important part in human diets as soy milk for infants, shoyu, or soy sauce as we call it, miso, tofu, tempeh, kinako, natto, yuba, etc.”

“Isolates and concentrates: In the mid-1930’s processes for further refining the protein factors of soy began to appear. The first 70% soy protein concentrate was turned out by Mead Johnson Co. using the Bonato process of sulfur dioxide and sulfurous acid extraction, but was discontinued for lack of adequate markets for the product. In 1936 the Glidden Co. began working on the production of an isolated protein [90-100% protein] from extracted soy flakes for industrial uses. Glidden, as a major manufacturer of resin, wanted the isolate as a stabilizer for the resin used in sizing paper to provide wet strength. By 1939 Glidden..."
was producing an enzyme hydrolyzed isolated protein to be used with egg albumen for its whipping capacity in producing food toppings... Over the years soy protein isolates have found their greatest application in the industrial field, particularly as paper coatings for high gloss products that are used to reproduce various colors in the printing processes. Because of their lower fiber content, greater dispersibility and high moisture retaining properties, soy protein concentrates and isolates have both found their major food application in the meat field serving the same functional purposes as mentioned above for soy flour, but with overall superior performance. During the past 2 years, as the world’s milk surplus has disappeared, demand for these products has increased sharply as replacements for both industrial and edible caseins.

“Soy protein isolates have also found some limited use at low levels in dairy-type products such as mellorine, in the dry synthetic coffee creams or ‘coffee whiteners,’ in a number of the whipped topping or whipped-cream-type products which are sold in pressurized cans, in icings and in other whipped foods where a light, fluffly structure is desired.

“Once again it is to be noted that most of the technology for producing the various soy protein products was worked out some years ago, and their nutritional values were well known and repeatedly verified in tests with both animals and humans.

“The War Years: During and immediately after World War II, when the specter of hunger and malnutrition stalked the continent of Europe as well as the underdeveloped countries of the world, a great deal of emphasis was given to the use of soy protein products to meet the food crisis over there and to ease the pinch of rationing here at home. Some of the products were successful. Most of them were not, and the reasons for both the successes and failures deserve attention in the light of our new position in the World War on Hunger.

“The net effect of these war feeding programs was illustrated by Howard Roach from a press conference he held in England in the early 1960’s as president of the Soybean Council of America. One of the reporters said to him, ‘Mr. Roach, the best thing you could do to encourage the use of soy in Great Britain would be to change its name.’

“’Why?’ asked Mr. Roach.

“’Because,’ said the newsmen, ‘during the war you shipped us a lot of soybean flour which went into our breakfast sausage. It started out all right, with a little soy and a lot of sausage. Then the sausage makers found they could include a lot of soy and less pork and increase their profits. Before they got through, we could scarcely eat the bloody things, and no Englishman has liked any food with the name soy in it since.’ This, of course, was no fault of the soy flour manufacturer or of the U.S. government.

“Up and down Europe you could hear hundreds of stories of the same kind: soy flour rotting on the docks because no one knew how to use it. Bad-flavored soy flour and grits. Soy flour with brown specks in it—no doubt from the hilum of the bean, but undistinguishable from contamination. Soy flour that made the bread loaves smaller, or the bread darker, or changed the flavor and so on and on.

“What went wrong? A lot of things. I’ll mention only a few:

“1–At that time many companies were in the business of producing soy flour and grits. Some, in an attempt to get more business, began to ship merchandise that met the chemical specifications of the government purchase orders, but fell short in flavor, structure and other organoleptic characteristics required to make good foods.

“2–Many otherwise good products were misapplied for lack of knowledge at the other end of the line—or in the rush to ship a product regardless of its intended use. As one company executive put it, ‘The idea of making a product that related to anything went down the drain.’ Fully toasted products were used where the less cooked products should have been employed—and vice versa. Soy flour was used where soy grits were indicated and, again, vice versa. As in the case of the English sausages, soy products were incorporated at too high a level, with disastrous results to the end products. You can misuse any good product—just as you can burn a steak. In the hodgepodge, the idea of soy as a good nutritious food was set back for 2 decades or more.

“3–Some blended products were formulated from political considerations rather than sound food technology. For example, a soup base for use in school lunches was formulated from one-third soy flour, one-third peanut flour and one-third cottonseed flour. This formula was fostered by the respective commodity groups who wanted part of the war-foods bonanza. The three commodity groups were all happy. The product was terrible. I know. I ate some of it.

“In the midst of all the hubbub, the voices of competent food technologists and marketing specialists could be heard—crying in the wilderness: ‘Stop this nonsense. Study the tastes and food customs of the people. Tailor the soy ingredients to the accustomed food. Show them how they should be used.’ But to no avail.

“Some excellent products were produced and shipped and found ready acceptance. I remember one in particular—a pea legume soup containing 20% soy, 60% pea flour and 5% dried milk with some other ingredients. It was good. Soy flour in canned pork sausage which kept the fat from separating out during autoclaving also helped produce a better product, but on the whole we learned too late that it is not enough to satisfy a man’s hunger if we do not also satisfy his palate. In the intervening years the number of companies producing soy flour for human consumption in the United States has diminished from several dozen in the middle 1940’s to only three or four today.”

A photo shows cans of Worthington Chloplets, Soymeat (3 varieties), and Numete—all made from spun soy protein.
fibers. Address: Soypro International Inc.


• **Summary:** Bees have been successfully reared without pollen, for 3 generations, using only soy flour (Sojamehl) (p. 92).


• **Summary:** Preparation of soya meal by mechanically grinding soya beans and mixing the product with an excess (4:1) of e.g. water, milk, wine, fruit juice etc., and then rapidly removing the liquid, with heating, causing explosive vapourisation of the liquid absorbed in the soya particles, and thus reducing the particles to approximately 20 microns in size.

The inventor has asked not to be named (Antrag auf Nichtnennung). The original inventor, Dr. Laszlo Berczeller, who died in 1955.


Address: Birkenstrasse 41, 4000 Dusseldorf [Germany].


• **Summary:** “I sort of ‘promised’ you that I would write a history of the Meals for Millions Foundation and the MPF concept’s origin... since I am perhaps the only one left qualified (by personal participation) to do so... [I] I have done considerable preparatory work among the voluminous files which Florence [Rose] rescued in 1964.” Starts with a few definitions.

“Preliminary--personal: Prior to my contacts with Clifford Clinton (1939) my education and experience were unrelated to food or nutrition or biochemistry. I did not know what a soybean looked like. I had received academic education in liberal arts, a law degree from George Washington Univ. (Washington, DC)–Service in the 1st World War (Intelligence Headquarters, 1st Div., 1st Corps and 1st Army) (Feb. 18, 1918 to Nov. 13, 1919). Prior to discharge I was with American School Detachment, Univ. of Paris, faculty of laws... was employed by Clifford Clinton in his municipal campaign to recall Mayor Shaw and elect Fletcher Bowron. [After that] I went to Washington again and was able (through connections there) to help Clinton get assigned to Quartermaster General as a Civilian Consultant on military problems. In 1944 Clinton worked out a big plan for national restaurant operation—which led me into contact with American food operations (General Foods, General Mills, etc.) but more and more my political direction became redirected into helping carry forward Clinton’s restaurant operation idea--through a Food Service Training School he operated at Clifton’s [cafeteria] for a year or more.

“In the course of his work while in Washington [DC] (during the depression years and prior to the development of government relief programs) Clinton noted various articles in the press and special publications that dealt with the possibility of developing new foods from materials less costly than those that prevailed in the American diet. In his restaurants he had experimented successfully with serving pre-prepared meals for 25¢ and then for 5¢—using largely conventional low-cost foods, distress food from the markets—day-old bread. He even had a 1¢ meal which was subsidized by himself and others and by ‘meal tickets’ sold to Service Clubs and Church members who would buy the tickets for 25¢ each and then donate them to needy people who would use them at Clifton’s restaurant to pay for their meal.

“But this was obviously a make-shift adaptation of conventional ‘charity.’ Clinton’s reading had led him to repeated comments that a completely balanced and nourishing meal could be provided at very low cost by using abundant vegetable proteins, synthetic vitamins, minerals from ‘non-food’ sources. It was well known that during war shortage in England calcium from the chalk cliffs of Dover had replaced the calcium found in milk. Principles long recognized in the feeding of animals were receiving attention as a source of human nutrition.

“So after much talk and correspondence, Clinton wrote to me (from Washington) in 1944 to see if I could find a biochemist who could (and would) develop a food product which would provide complete nutrition (protein, vitamins, minerals, calories) in a compact form that would cost no more than 5¢—and which could be added to normal deficient diets (rice, wheat, roots, etc.) without changing their accustomed flavor—which would be ‘acceptable’ and not be contrary to anyone’s religious belief or social ‘taboo.’

“So I started out—saw a few commercial chemists who were so busy and disinterested that I about gave up until I noted a new book [1940] on Vitamins by Dr. Henry Borsook, Professor of Biochemistry at California Inst. of Technology.

“Borsook read Clinton’s specifications and told me they could easily be met—that they had been met in animal feeds for many years—that such food items had been experimentally developed in laboratories for many years but that the obstacle was the American Food Industry—such institutions as the Meat Institute, the Dairy interests—

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organized to protect the market for producers of their special products. He said that Science had for a quarter century been able to provide adequate nutrition at costs far below what people adequately paid for foods... The Dept. of Agriculture pleaded farmers’ income first and let human nutrition become secondary to income interests of food merchandisers and producers.

“If Clinton will serve this food in his restaurants I will develop it here at Cal-Tech... He will have to provide about $10,000–convert a laboratory into a kitchen, enable me to hire a cook and a laboratory assistant and buy some materials for developing the type of food he wants–but, he warned, you will waste effort and time by trying to introduce this kind of food through normal channels of trade in the American wholesale and retail market.’

“I wrote the results of this interview to Clinton, in Washington. He returned to Los Angeles with his wife [Nelda] and restaurant associates signed the agreement with Cal-Tech.

“The laboratory at Cal Tech became a kitchen. A French cook (Mme. Soulange Berczeller) was employed and Josephine Williams (Now, I believe one of the home demonstration personnel in the U.S.D.A.) was the lab assistant.

“After some experimentation with various vegetable proteins (alfalfa etc.) Borsook decided that soybean meal offered the best and most abundant vegetable protein available at a price low enough to enable Clinton to serve his ‘5¢ meal’ without losing money.”

A few key dates:
1944 Jan. 1–Clinton writes Chamberlain outlining 12 essential characteristics for the proposed new food.
1944 May 22–Clinton signs the agreement with Cal-Tech to develop the new food with the proviso that the formula should be free to the world. Borsook called the product Multi-Purpose Food. Thereafter MPF was served at Clinton’s cafeterias in Los Angeles.
1944 Dec.–Two MPF type products had been developed. One was a soup mix made by the Boltz Mfg. Co. (Los Angeles). The other was made by the Gentry Company of Los Angeles. Clinton tried both products in his restaurants–chose the Gentry product because it was more versatile and economical. Address: Residence: 1335 Indiana Ave., South Pasadena, California 91030.

241. **Product Name:** [Soyamin 90, Soyamin 70, Soyamin 50T, Soyamin 50 E].
**Foreign Name:** Soyamin 90, Soyamin 70, Soyamin 50T, Soyamin 50 E.
**Manufacturer’s Name:** Lucas Meyer GmbH & Co.
**Manufacturer’s Address:** Ausschlaeger Elbdeich 62, 2000 Hamburg 28, West Germany.
**Date of Introduction:** 1973 June.


• **Summary:** The cover of this portfolio has light-green letters and the company logo on a dark-green, glossy background. The inside front cover states that Edelsoja GmbH has been processing soybeans for more than 40 years (i.e. since before 1935). “It is one of the oldest and most experienced fullsoy protein manufacturers. Associates are the Ölmühle Hamburg AG with a yearly soybean processing of approximately 600,000 tons, and the Lucas Meyer group, which is a leader in the soy lecithin field.” The inserts are:
(1) Letter dated 3 June 1975 to Mr. Arthur C. Eldridge, USDA NRRL, Peoria, Illinois, from Günter Krull, signed, on letterhead. His company is one of the few producers of full-fat soybeans flour. He and his technical colleagues would like to meet Eldridge in the USA during an upcoming trip. Business cards from the following colleagues are enclosed: Heinz Thiem of Oelmuehle Hamburg AG / Hansa Muehle. Ruediger Ziegitz. On the letterhead the old place of production (Neuhaeuser Damm 27) has been crossed out; the new place is Koeihbrandstrasse 1. (2) Soypur product description. It is “a finely ground full-soy protein [whole soy flour] from which the bitterness has been removed by the special Edelsoja process.” Contains 40.0% protein, 21.0% fat and 3.5% crude fibre (2 p.; 7 Nov. 1973). (3) Nurupan product description. A whole soy flour from dehulled soybeans with 41.0% protein, 20.0% fat and 2.5% crude fibre (3 p.; 7 Nov. 1973). (4) Soyapan product description. “An enzyme active full-soy protein [whole soy flour] for white and toast bread.” Contains 41.0% protein, 20.0% fat and 3.5% crude fibre (1 p.; 7 Nov. 1973).

Note: These dated inserts (7 Nov. 1973) are the earliest documents seen (April 2001) concerning Lucas Meyer GmbH. Address: Ausschlaeger Elbdeich 21, 2 Hamburg 28, West Germany. Phone: (040) 78 1708.

Proceedings

World Soy Protein Conference

Munich, Germany
November 11-14, 1973

AMERICAN SOYBEAN ASSOCIATION

Berwin Tilson, president of the American Soybean Assoc., notes in the introduction (inside front cover): In Oct. 1972 “It was felt that the time was right to gather together top representatives from all areas affecting the soy foods industry... 1,100 representatives from 47 countries actually attended.” This was a pioneering and very important conference. It was opened by the U.S. Secretary of Agriculture Earl L. Butz, and senator Hubert Humphrey delivered a memorable, inspirational address. Many distinguished scientists and politicians also presented papers.


- Summary: Note: Dr. Henri Baruk knew Laszlo Berczeller personally as a patient in Switzerland.

This paper was presented on 26 Jan. 1974 at a meeting of the French Society for the History of Medicine. Soya has long been used in China but its application as food is thanks to a process discovered by Ladislaus Berczeller, a scholar of Jewish origin, born in 1885 in Budapest. The idea to study soy came to him in 1912 following “dinner of soya” at the Japanese embassy in Berlin. In about 1918-1920 Berczeller was working at the laboratory of Dr. Wassermann on the proteins in blood. He had been a professor on the faculty of medicine in Budapest and a director of the food institute in Vienna. He had many difficulties in disseminating his discoveries. In 1926 he traveled to Russia for the soy industry and was named an “honorary General of the Red Army.” In Germany his patents were used by Hauser [sic, Hansa] Muehle in Hamburg. In England his soy flour was produced by the Soyolk Society. In 1924 a soyfoods dinner was given in London; Winston Churchill attended.

Berczeller traveled widely in Europe to study this question and larger questions of food in Romania, Bulgaria, Yugoslavia, Portugal, Italy, etc. He made proposals concerning soy to the French government as early as 1929. In October 1939 Mr. Arnould asked C.N.R.S. to invite Dr. Berczeller to come to France. He arrived in Paris via Geneva under the auspices of the League of Nations, and worked with Mr. Arnould on the introduction of soybean growing into the region around Toulouse and of soyfoods into the French army.

The defeat of France in 1940 stopped his work. Trapped and hunted as a Jew by the Germans during their occupation of France (from June 1940) he lived clandestinely and underground. Then in 1949, undernourished and exhausted by cachexia (physical wasting and malnutrition) and attacks of asthma, he was hospitalized after fainting in the Paris subway. He was sent to various hospitals, then to the Henri-Rousselle Hospital, then to Sainte-Anne at Vaucluse, finally arriving in April 1951 at Clairfontaine, a psychiatric hospital at Saint-Rémy in the French department of Haute-Saône [in northwestern France].

During the war we, in our Department (service) at Saint-Maurice Hospital, were able to observe the good effects of soy thanks to professor Gounelle, who put us in touch with his collaborators: R. Mande J. Marche, Professor Dumas, of the Pasteur Institute, and M. Saunier, as well as M. Raoul, who worked on proteins, lipids, and vitamins. Our intern, Mr.
Bachet, studied these problems in depth. The numerous and important works of Prof. Gounelle and his co-workers have clarified many nutritional and medical problems. We were able to confirm the remarkable effects of soya on edema and other manifestations of undernutrition.

In 1953 Prof. Verzar, of the Institute of Physiology at the University Basel (Bâle, Basle, Switzerland), moved by the sad condition of Dr. Berczeller, asked us to take him into our care.

We promptly installed him in the best possible room under our care at Saint-Maurice, where he entered on 20 June 1953.

According to the certificates that were sent to us, we have the impression that the actual statements of Dr. Berczeller had sometimes been interpreted as the ideas of a megalomaniac, or one making great claims, because there was talk about mental imbalance, of paranoid tendencies, making great claims, of inability to adapt.

Upon joining us, Dr. Berczeller spoke very freely in both French and English of many ideas about feeding people and animals. He complained above all at being without a country, suspected on all sides, and rejected by all official good-paying jobs.

The social worker in charge of the foreign refugees came to see us on 25 June 1953 and confirmed the narratives of Dr. Berczeller. She also told use that he had been divorced before the war, and he had already stayed in Switzerland for 4 months (in the clinic of Dr. Mueller). He had had an operation for pulmonary fistula, following a thoracic traumatism originating in his asthma and then complicated by important cardiac troubles.

During his stay he was visited by Mme Rousselin (58, avenue Jean-Juàres à Meudon, Val Fleury); and by Mme de Bissingen (27, rue Montrosier à Neuilly-sur-Seine). Finally we received extensive information from Mme Koechlin, Emigration Aide, which confirmed that he had been professor of biochemistry at the University of Budapest and director of the institute of food research in Vienna in about 1920. He had left Austria in 1939 and was able to come to Paris to see Prof. Clouard of the Ministry of War, where he had been appointed.

During the occupation he was aided by an American, Mrs. Rousselin, who worked at the American embassy. In 1945 he came to the Office of Emigrants, suffering from bronchitis and asthma. He was hospitalized at Cochin, at the Pitié, then at Henri-Rousseau.

Likewise, during his stay, we saw Prof. Longchampon, who confirmed to us Dr. Berczeller’s important scientific works.

Everyone agreed that Dr. Berczeller would have been better placed in a rest home (maison de repos) in Switzerland than in a psychiatric hospital. In June 1950, during his stay at Sainte-Anne, a note was written to this effect on 30 June 1950 by Dr. Bressières, who noted that he was very calm, would be better in a more appropriate location, and did not have tuberculosis.

To this end we tried to contact the American companies who were producing or had produced his soy products in order to raise a little money to send him to a rest home in Switzerland. Professor Verzar helped. Prof. McCay, a professor of nutrition at Cornell University [New York], assisted with a plea for help that was published in Soybean Digest (May 1953, p. 31). Dr. McCay and his wife visited Dr. Berczeller in a French mental hospital.

Mr. Keinewalter sent 50 letters to soy processors but received only one response for $10, which arrived on the eve of Dr. Berczeller’s death at the Establishment of Saint-Maurice (l’Établissement de Saint-Maurice) on 14 Nov. 1955. He was buried free of charge for 5 years at the Establishment’s graveyard, then transferred on 24 Oct. 1967 to a place acquired for 10 years by Mr. Francis Arnould who lived at 97 avenue Émile-Zola in Paris.

In 1974 the city of Paris was looking for a permanent resting place. “May the scientist Dr. Berczeller rest in peace. One of the men who as contributed most to the easing of misery and hunger in the world has died disowned and himself in misery.” Address: Prof., Paris (Member ‘Académie de Médecine).


• Summary: This paper was presented on 22 Jan. 1974 at a meeting of the National Academy of Medicine. The presentation and bibliography end several inches from the bottom of page 50. The rest of the article (2¾ pages) is about a discussion.

This article is somewhat similar (but certainly not identical) to one presented 4 days later by the same author to the French Society for the History of Medicine—see for details. Address: Prof., 5, quai de la République, 94410 Saint-Maurice, Paris [Member Académie de Médecine].


• Summary: In mid-1973 Lucas Meyer and Oelmuehle Hamburg AG (which processes about 600,000 tons/year of soybeans) each acquired a 50% interest in Edelsoja GmbH and Nurupan GmbH, Hamburg and Düsseldorf. The goal of the new Edelsoja organization is to make the food industry a package offer of all kinds of processed soybean protein products.

A chart lists the company’s commercial products:
Nurupan: A full-soy protein. Soyapan: An enzyme active full-soy protein for white and toast bread. Soyoco: Pleasant-tasting soya nuts. Procarno: Texturized soybean protein. Soyena 40: Granular, full-fat soybean proteins from which the bitterness has been removed. Soyena 50: Granular, defatted soybean proteins from which the bitterness has been removed. Soyamin 90: A soy protein isolate. Soyamin 70: A soy protein concentrate. Soyamin T: A 50% soy protein concentrate of high biological value from which the bitterness has been removed. Soyamin 50E: A deoiled / defatted soybean protein of high albumin dispersibility.

A photo shows the Edelsoja booth during the November 1973 World Soy Protein Conference in Munich, Germany.

Note: This is the earliest English-language document seen (Jan. 2016) that uses the term “albumin dispersibility” to refer to soy protein properties.

247. Krull, Guenter. 1975. Re: Request to meet to discuss use to refer to soy protein properties.


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NURUPAN DOES IT

EDELSOJA GMBH HAMBURG 28

Vertreten durch:
SUGRO AG 4002 BASEL
Sevogelstrasse 21
Telefon 061/415820
New Product–Documentation: Soya Bluebook. 1980. p. 52. But on page 46 of this year’s Soya Bluebook, this company’s address is given as “Ausschläger Elbdeich 62.” The phone number is the same. Soya Bluebook. 1986. p. 86.


• Summary: In answer to your letter of 14 July 1981 I can only partially answer your questions. Ladislaus Berczeller, born in 1885 and died in 1955 did not earn his degree at the University of Vienna, however he did work for a considerable time in Vienna, as you will see from the enclosed photocopy. In a dispute with the dean of the medical faculty in 1921, he was fired / terminated, since he had worked in a laboratory at the Josephinium.

In 1921 he published an article in the Wiener Clinische Wochenschrift in which he discussed the nutritional value of soy flour, and in 1926 H. Wastl of the Physiological Institute (aus dem Physiologischen Institut) published an article about soy flour in which she cited Berczeller’s work.

Four enclosures. Address: Prof., Dr. med., Institut fuer Medizinische Physiologie an der Medizinischen Fakultaet, University of Vienna, Schwarzspanierstrasse 17, A-1090 Vienna, Austria. Phone: 0222/43 15 26.


“Unilever has played an active role in both the production and application of soy protein materials... In Europe the major source for the production of vegetable protein for human consumption is still the soybean...

“Production of soy protein materials in Western Europe is concentrated in Denmark, The Netherlands and the United Kingdom. France and West Germany produce only small amounts... Some producers are U.S. firms (e.g. Cargill, ADM) or their European subsidiaries; others are European companies. Typical European producers are Aarhus Oliefabrik (Denmark), Unimills (The Netherlands), Spillers and British Soya Products (United Kingdom) and Edelsoy [Edelsoya?] (West Germany)...”

“Typical European producers of isolates are Oppenheimer (England) and Edelsoy (West Germany). Fibre spinning is still being studied, e.g. by Rhone Poulenc, France, although it has not made a real break-through. The protein department of Courtaulds (United Kingdom) who until recently, was the sole European manufacturer and supplier of spun soy fibres has been taken over by Mars...

“The whole current range of soy protein materials is being used in Europe. The best information is available for the United Kingdom. There, in 1972, 90% of the 45,000 tons of soy food ingredients used was accounted for by full-fat flour in bakery products and, to a lesser extent, in baby and health foods. Only 2,000 tons of soy materials, textured and non-textured flours and isolates, were used in meat products, mainly in institutional feeding and in the catering sector. This amount has increased to 5,000 tons in 1975. In 1977, the total consumption of soy materials amounted to 50,000 tons; thus no great change had occurred.” Address: Unilever Research Duiven, Zevenaar, The Netherlands.


• Summary: “We regret to inform you that we don’t know anything about Dr. Berczeller. As stated in our brochure, the company Edelsoja was taken over by Oelmuehle Hamburg AG and Lucas Meyer in 1973 from Mr. Walter Klein, who ran the Edelsoja for over forty years. According to our records Dr. Hans Weiss founded the company in 1932 in Berlin. On receipt of your letter we tried to get a copy of the register of commerce with details of the foundation. However, the authorities now informed us that the document of foundation cannot be traced. Mr. Walter Klein, who would certainly have known details, died in 1981.” Address: Edelsoja GmbH, Postfach 28 02 46 (Ausschlaeger Elbdeich 21), 2000 Hamburg 28, West Germany. Phone: (040) 78 17 01-08.


• Summary: A comprehensive history of the subject. The full history of this subject is available on our website at www.soyinfocenter.com. Just search for Berczeller in the search box. Or, in the left navigation bar, click “A Comprehensive History of Soy,” then scroll down to Chapter 60, “Laszlo Berczeller and Edelsoja.”

Contents: Introduction. Early interest in and work with soyfoods (1912-23): birth and family, first contact with soyfoods (1912), work during World War I and until March 1920, work in labs of Robert Graham after March 1920, article for London Times on soyfoods, conflict with University of Vienna faculty, early nutritional research and publications (1921-), articles in Hungarian (1921-25). New alliances and progress (1923-): Independence from Graham, 10,000 loaves of Viennese soy bread a day by July 1923, first solo patent (1924), his flour the best to...
date, how made, early travels and promotion, London and Winston Churchill (1924), articles by colleagues (1924-26), to Russia in 1926 and again in 1930, relation to 1921 crisis and Graham, more articles and support (1927-30), Horvath’s influential 1927 article, compilations, Loew (3 volumes 1928-30) summarizes Berczeller’s many writings, Berczeller a promoter, bombarding governments with information, Edelsoja (1928+), Ferree’s *The Soya Bean and the New Soya Flour* (1929), Berczeller’s interest in large-scale European food problems. Production and promotion of Berczeller’s soy flour: when and where first produced (1929), post-1929 nutritional value, patents (from 1929 on), travels and visits with famous people (late 1920’s-1930’s), Horvath update of information on Berczeller (1931), obstacles to spread of soy flour, losing lawsuits, German successes, Hansa Muehle, Edelsoja, French connection (1932), international hopes, 1934 divorce, Gray update of information on Berczeller (1936), National Center for Scientific Research (CNRS–Centre Nationale de la Recherche Scientifique) invitation to France in 1939. Berczeller as a person. World War II and aftermath: underground and malnourished, estimated uncollectible unpaid royalties from German soy flour producers of 5 million pounds sterling, Swiss surgical operation, fainted in Paris subway (1949), mental hospitals, death in 1955, letter from Clive McCay describing Berczeller’s tragic situation, Edelsoja GMBH today, legacy in Austria, bibliographies, legacy to the world.


**Summary:** “Unfortunately, we could not find any evidence that Dr. Chas. E. Fearn was in any way connected with our company... Soya Foods Ltd. was formed on 6 Feb. 1933. The partners in the business at the time were the Ferree brothers, who were of Dutch extraction. Prior to that date, there are newspaper cuttings referring to 1929 and 1930 and mentioning that ‘a company was formed for the production of Dr. Berczeller’s soya flour in this country’—The Soya Flour Manufacturing Co. Ltd. of 7 Mincing Lane, London E.C.3—and ‘a large and well-equipped factory has been erected where large scale production can be effected.’ Thus, Dr. Berczeller’s Soyolk, soya flour, was hailed as “The Great New National Food” and The Soya Flour Manufacturing Co. Ltd. was the first in this country to introduce soya and its benefits to the nation... In 1930 a book was published, by C.J. Ferree (later one of the Directors of Soya Foods Ltd.), ‘The Soya Bean and the New Soya Flour.’

“In 1933, The Soya Flour Manufacturing Co. Ltd. changed its name to Soya Foods Ltd... In September 1941 it moved to new offices at Boreham Holt, Elstree, with the mills at Rickmansworth, Hertfordshire. The mill was a small plant and during the war years beans were rationed and all supplies came from the then Oil and Fats Division of the Ministry of Foods. This control still existed up to 1952.

“Mr. J.C. Ferree was the Chairman and Managing Director of Soya Foods Ltd. for 19 years. He left the company in March 1952 to work on other projects. He was, in his Soya Foods days, a founder of the Soya Overseas Development Co. which was composed of practically all the soya manufacturers in Britain. He was also the originator of ‘Soylac’ and an author of many books and articles on the soya bean.

“Soya Foods Ltd. offered products like ‘Soyolk’—the pioneer edible soya flour for all foods, ‘Diasoy’—the special enzyme-active soya flour for bread and, ‘Soypro’—the fat reduced soya flour... ‘Soylac’ was another product and it was a milk like powder for use in cakes and confectionery. ‘Proton’ appeared in advertising in 1946 as processed powder for foodstuffs, ice cream, etc. ‘Soylac’ was last produced in 1952.

“During the war soya became one of the most important foodstuffs, being used widely in bread and sausages as a substitute for meat. Soya also gained vast military importance both as a foodstuff... and as a component for explosives and other war chemicals which were manufactured from it...

“Soya Foods Ltd. was purchased by Spillers Ltd. in 1945 (and is still part of the Group) and moved to its new address at 40 St. Mary Axe, London EC3, with manufacturing works still at Rickmansworth, Herts.

“Products were being added to the range. ‘Vitasoy’—mentioned in the advertising in 1948 was a dehydrated, pasteurised and vitaminised infant and vegetarian food. ‘Colmiks’—ice cream powder, appeared in 1949, ‘Soyzipan’—cake topping and ingredient for making macaroons etc., in

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1950. Other products were ‘Hot-Mix’—complete ice cream powder.

“In the 1950s, Soya Foods Ltd. expanded further with a new plant in Cardiff. Extracted soya bean meal, defatted soya flour and de-gummed soya bean oil were added to its products.

“Prior to 1952 the Board of Directors were J. Twomney, J.C. Ferree, Mr. Laycock and David James. Mr. Laycock was the Technical Director and assisted in the erection of the Cardiff plant.

“In January, 1956 the plant was relocated to Bermondsey, S.E. London. In 1968 the factory and soya mill were rebuilt and this modernised factory produces the current wide range of soya flours and food ingredients.

“Today, Soya Foods Ltd. is a company within the Dalgety-Spillers Group, and closely linked with Spillers Milling Ltd., with vast research and development back-up at the Group’s laboratories in Cambridge.

“The Head Office is at New Malden House, 1 Blagdon Road, New Malden, Surrey, where the Directors and Sales Administration are situated. Production is located in Bermondsey and local depots are strategically placed around the UK to back up the National sales team.

“The Company specializes in the manufacture and sale of soya flours and baking improvers and believes in operating with a strong technical bias, and the strength and benefit of this can be seen in the quality and sophistication of the products. A major contributor to this is the RTC (The Research and Technology Centre), where all research and development is centered. The RTC occupies a three-acre site in Cambridge and employs 180 people with professional qualifications and experience in a wide range of skills and disciplines.

“Today, Soya Foods Ltd. sells sophisticated bread improvers which fulfill the requirements of the modern processes used in bread and morning goods production. The product range is vast, and it includes all purpose improvers, specialist improvers and now bakery concentrates, together with ingredients for flour confectionery.

“Ongoing product development ensures new ingredients being developed all the time. Soya Foods Ltd. now sells specialized ingredients, including Soyolk, to many parts of the food manufacturing industry.”

Following this information are 6 pages of photocopies of early articles and advertisements (starting in Feb. 1929) about the Company. Address: Business Development Asst., Soya Foods Ltd., New Malden House, 1 Blagdon Road, New Malden, Surry KT3 4TB, England. Phone: 01-949-6100.


• Summary: A comprehensive history of the subject. Contents: Introduction: Summary, unfortunate lack of documentation. Early years in Europe: Birth in about 1869-71 in Cook County, England, he was married in England and became a physician, research showing that vitamin B was not a single vitamin but a group or complex of vitamins, not clear how introduced to soyfoods (though possibly through Solac, England’s first soymilk), work during World War I as a physician in the English Royal Army Medical Corps in charge of a hospital in England. Early work in the USA (1917-1929): Called by President Wilson, quote from Paul Richard’s history, interesting that a British physician took such an interest in soyfoods and work with farmers, founded Soyex Co. in New York (1920) according to Richard 1955, moved to Chicago and started Fearn Labs (1923), founded Fearn Soya Foods Co. (1925), familiarity with Berczeller, analysis of coin collection for clues to travels, in Europe in 1929, first documentation of involvement with soy (1929), director of Soya Flour Mfg. Co. in London on the way to the U.S., treatment of infant allergies with soy as a substitute for milk. Soyex Co. and Fearn Soya Foods (1930-39): Horvath (1933) discusses Soyex Co. in Nutley, New Jersey, pamphlets written before 1934, strong opinions (whole soy flour far superior to defatted soy flour, too much carbohydrate in American diet, soy flour should be made from a blend of soybeans), sold Fearn Laboratories (1934) and turned Soya Food Products over to it, later history of Fearn Labs, establishment of Fearn Soya Foods Co. (1935), many new products, list of products with earliest date of mention, pamphlets by Fearn Soya Foods 1935-38, sales to health food market by trying to reach physicians, switch from making soy flour to buying from Shellabarger (1937) and Spencer Kellogg (1946), Los Angeles business with Thomas J.M. “Malcolm” McBride, Viana “scientific reducing diet” fiasco, McBride sets up own company and slanders Fearn, friendship with LeClerc of USDA. 1940-59: World War II helped Fearn’s shrinking product line, establishment of Soy Food Mills with Richard Thomas, Golden Soy Griddle Cake Mix, encourages USDA to develop soy fortified foods for famine relief’ (1946), development of soup base seasonings with Harry Belleville in San Clemente, California, death in June 1949 at about age 79 at a (mental?) hospital in Elgin, Illinois (near Chicago), purchase of company in Sept. 1949 for $500 by Paul Richard, summary (good ideas, poor businessman), hardships for Paul Richard in 1950’s (loss of formulas, 1955 flood). 1960-1980’s: Death of Paul Richard in 1960, takeover of business by son Elwood, sale to brother Lou in 1970, real growth starting in 1973, 1982 name change to Fearn Natural Foods, same strong commitment to soy. Address: Lafayette, California. Phone: 415-283-2991.


• Summary: Examines some of the products in which soy
protein can be satisfactorily used as a substitute. Tabulated data show the protein, fat, carbohydrate and moisture content of the 4 basic soy products available: full-fat protein products; defatted soy protein qualities; soy concentrates; and soy isolates.


• Summary: Eva writes that her father is recovering from an operation. “I hope you will be able to decipher my handwriting taken down as Daddy talked. The letter came just at the right moment–to get his mind off his various physical ills.

“I have no idea if Mme. Berczeller was related to Laszlo Berczeller. We knew her well and she never mentioned this. She was simply a friend who was a good cook and who was willing to work for a low salary.”

True: For the first 20 years Clifford Clinton was the unsalaried president of the Meals for Millions Foundation. He was very active as far as general direction was concerned but he left the details to the officers [Florence Rose and Ernest Chamberlain].

Soy flour was never used in the formulation of MPF; only soy grits which were a better product, nutritionally superior, more versatile, less processed, less expensive and more available.

The early reputation of MFM and Florence Rose in Washington, DC: “Opinion varies. Jealousy of Washington officials who disliked her non-observation of bureaucracy and protocol. Jealousy of others as well. She was responsible for Dr. Subrahmanyan’s establishment [in India] of what was one of the best nutritional establishments in the world. Also keep in mind the opposition of the pro-agriculture lobbies in Washington, DC.

“For 10 years the Food and Nutrition Board, then dominated by agricultural interests, made life somewhat difficult for MFM because not only was it a sort of menace (they thought in terms of fresh food sales, which of course were too costly for the poor) and thus they liked to mutter that MFM was a misleading name in one sense of the word ‘meals’–because it was low in calories.”

For more information, Dr. Borsook suggests that Shurtleff speak to Mrs. Clinton [Nelda] and her sons as well to Ernest Chamberlain.

Dr. Henry Borsook, who died later in 1984, is widely considered a major pioneer in the field of nutrition. Address: 2663 Tallant Rd., Santa Barbara, California 93105.


• Summary: This is an interview with Dr. Borsook’s daughter. She knew Madame Soulanger Berczeller, who lived in Pasadena (near Lake Avenue) for 40 years. She lived throughout the 1930s in that house; she was not a refugee. She was living in Pasadena when Dr. Borsook hired her; he knew her well and she never mentioned Laszlo Berczeller. She was known as a good cook and she spoke with a strong French accent. The daughter thinks Madame Berczeller was a widow, and that if Madam B. had been married to a well-known European she would have heard about it. She doubts Madam B. was ever Laszlo Berczeller’s wife. She became an American citizen. She was a dressmaker, kept house, took in a few boarders, was indeed a marvelous cook, and a very loving person. She died in early 1950.

To find out more about her, one could go to a “public records office.” The city hall in Pasadena should have those records. Or one could write or call the clerk of the records and ask for her vital statistics. All good historians go to such archives.

Clifford Clinton was generous, but he was not rich and he was not a philanthropist.

Meals for Millions kept ledger books showing details of every shipment of MPF ever made. From these they compiled several comprehensive reports.

Gentry Foods is at 648 South Broadway, Los Angeles 14, California. Walter Bray is still technologist at MFM. Address: 2663 Tallant Rd., Santa Barbara, California 93105.


• Summary: Together with her husband, Clifford Clinton, and Ernest Chamberlain, Mrs. Nelda Clinton went on the first visit to Dr. Henry Borsook (pronounced bor-SOOK) at Caltech (California Institute of Technology) in Pasadena. When Clifford returned from World War II, he felt that the cafeterias must do more to feed the hungry in Los Angeles. He asked Dr. Borsook if there were any way to create a nourishing meal for a nickel ($0.05). The first goal for such a meal was in Los Angeles–later the world. Clifford told Dr. Borsook the various specifications for such a food to make it universally acceptable. Nelda thought Clifford was asking too much–to meet all these requirements for just a nickel.

Dr. Borsook replied: “All my life I have wanted a challenge like this.” So he accepted a cash grant. Caltech gave him a little room that he could use for a kitchen–to develop recipes and conduct experiments.

“He then hired Madame Soulange Berczeller. He knew that oleomargarine presscake was loaded with nutrients; animals thrived on it in mixed feeds and chickens produced more eggs. Presscake could be used if it were made palatable. Then Madame Berczeller came in with her French background and introduced seasonings; so they ended up with three forms or flavors of multipurpose food. One was flavored with seasonings to taste like sage dressing for
turkey or fowl. One was completely unseasoned. The third contained powdered milk for nursing mothers or infants.

Nelda only met Mme. Berczeller once—briefly at the kitchen. She recalls her being European—maybe French or German or even Austrian.

Dr. Borsook’s food was named “multi-purpose food” right from the beginning.

Nelda does not know much about the United Rescue Mission. It is a Christian organization founded in the 1940s to help those who are homeless, hungry, addicted—basically down on their luck. It gives comprehensive care to those in crisis. Nelda remembers some kind of mission on Main Street in Los Angeles.

Note: The United Rescue Mission (URM) in Los Angeles was a place where homeless men could receive food and a bed for a few nights. It is still active there. It does have a religious focus, and it probably received Multi-Purpose Food.

Clifford, the son of Christian missionaries in China, left China when he was 12. China was not open to missionary activity after the Communists came to power in 1949.

Early documents about Meals for Millions (MFM) are in many places. Clifford’s sons would have many at the cafeteria in Los Angeles—The Silver Spoon, 515 West 7th St., Los Angeles, California 90014. They have many files of documents there. Nelda’s son, Donald Clinton (213-485-1814) will be leaving for Southeast Asia in a few days. Nelda’s daughter, Jean Roeschlaub, will be there. Donald has a complete file on the history of MFM. Also, the UCLA research library as lots of files from Ernest Chamberlain, who was the first major secretary. Edmond Clinton (213-796-3618), another son in Pasadena, also has a great knowledge of the early days; he was one of the founders and a director of 20 years. He now works for Badle’s cafeteria in Pasadena.

Nelda gave UCLA 7 cardboard boxes of clippings in scrapbooks. Her husband, Clifford, also fought crooks and corruption in the Los Angeles government.

In the early 1940s [outside the Midwest] the soybean was largely unknown in the United States. Address: 4411 Los Feliz Blvd., Apt. 1001, Los Angeles, California 90027. Phone: 213-663-3838.


• Summary: See next page. Contains 9 papers, mainly on soyfoods in Europe. A directory includes company name, person’s name, and address for the conference’s 105 participants. Organizations represented include Caderas de Kerleau, Aarhus Olefabrik (Aarhus C, Denmark), Aixagri, Alfa-Laval, Alfa-Laval Food (John Wilson), Alpro N.V. (Ph. Vandemoortele, Ch. Daems), Alpura Koreco Ltd., Aros Sojaprodukter (Ted Nordquist), BRT, Cargill (R. Sevink, Amsterdam, Netherlands), Cauldron Foods Ltd. (Mr. Marshall, Mr. Fagan), Centraalbureau Voor Schimmelstruct, Centro Studi Proteinati Vegetali, CETIOM ONIDOL (Emmanuel Prudom, Toulouse, France), Chemex, Comite Eetbaar Plantaardig Eiwit (Hague, Netherlands), Consumers’ Association, Condimenta, Cooperative Occitane, Danish Turnkey Dairies Ltd., Delisana Natuurvoeding, Deutsche Gesellschaft für Ernährung [2 different addresses], DE-VAU-GE Gesundkostwerk (Dr. W. Lubosch), Dragon & Phoenix Ltd. (Donald Lysen), E & R Chemicals, Edelsoja GmbH (K.O. Tielker), E.M. Chajuss Ltd. [Daniel Chajuss], Fa L.L. Frank (Missendorp de Bie), Fed. Nat. Syndicats De Dietetique, F.I.M. Houterman, Food Industries, Food Manufacture, F.M. Lin, Galactina Ltd. (P. Speck), Gebruder Bauermester, Gemint, Giulini Chemie, Goorden Import Cy, Henselwerk GmbH (Rolf Berger), Heuschen (Mr. Heuschen, Deurne, Netherlands), Itona Products Ltd. (Mr. and Mrs. Hampson), Ivel, Keuringsdienst Voor Waren, Libelle, Lucas Meyer (Axel Schulte), Masterfoods, Melkunie Holland, Niticel B.V., ONIDOL (Guy Coudert), Paksoy TIC, Paul’s Tofu (Paul Jones), PFW Nederland BV, Plumrose FDD, Premier Foods, Purina Protein Europe (A.G. van der Horn & Willy Naesens, Zaventem, Belgium), Royal Neth. Dairy Federation, Ruitenbergh N.V., Sanico N.V., S.G.A. Flavours, SIO [Societe Industrielle des Oléagineux, Marie Gérard, Nanterre, France], Sojadoc (A. Lacombe, P. Roger, Mr. Henras & Mr. Attié; St. Paul, 81140 Penne du Tart, France), Sojaquelle (Wolfgang Furth-Kuby), Solnuts B.V. (J. Liebregts), Soy (De Preneuf, Cerny, France), Staley International, Stern Chemie (Volkmar Wyvial, Hamburg), UNCAA, Union Deutsche Lebensmittelwerke [Hamburg], Univ. of Strathclyde [Glasgow, Scotland], Vamo Mills (B. Cleenewerck, Ghent, Belgium), Verstegen Specerijen, V.D.SP.V.B.A., Wenger International (L. Ben Gera, Antwerp, Belgium).

Registered on Sept. 27. Naarden Intl., Protevit, Wessanen, Mr. Karas & Mr. Droshin [Soyastern–From Germany, not Turkey].

A note in the Nov. 1984 issue of Soya Foods (ASA, Europe) (p. 2) stated that the workshop was attended by 105 people from 14 countries, and was considered to have been very successful.

Note 1. This is the earliest published document seen (May 2015) concerning Sojadoc of France.

Note 2. E.M. Chajuss is the name of Daniel Chajuss’ father. He and his son founded Hayes Ashdod Ltd. “E.M. Chajuss Ltd.” is a limited or incorporated company that was jointly owned by Daniel and his father. Daniel Chajuss attended this Soyfoods Workshop as a “delegate” of E.M. Chajuss Ltd. company.

Note 3. This is the earliest document seen (May 2015) that mentions Wessanen of the Netherlands. Address: Brussels, Belgium.

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AMERICAN SOYBEAN ASSOCIATION

FIRST EUROPEAN SOYFOODS WORKSHOP

SEPTEMBER 27-28, 1984

KRASNAPOLSKI HOTEL
AMSTERDAM
263. **Product Name:** [Soy Protein Concentrates, and Soy Protein Isolates].

**Manufacturer’s Name:** Edelsoya GmbH.

**Manufacturer’s Address:** Ausschläger Elbdeich 62, 2000 Hamburg 28, West Germany.

**Date of Introduction:** 1984.


• **Summary:** 1980 Oct. 22. First Table of Contents for Soyfoods History. I started this book because Nahum Stiskin of Autumn Press refused to let us use material from our tofu and miso books in our next book, titled *Soyfoods*, and it’s hard to write the history portions of soyfoods. Inspired by Dr. Harry W. Miller and Henry Ford.

  Dec. 9. Start to put bibliographic records on 3 x 5 inch file cards.


  May 15. Make Overview into four chapters. Add Soybean Chronology, Sri Lanka, History of Soybean Production, Asian History, Berczeller, USDA.


  June 6. Make Chronology Chapter 1. Make History of Soybean Production a separate chapter. Add McCay, Soyfoods Producers in the West (Listing of companies), changed title from Soyfoods History to History of Soyfoods.

  August 21. Four Soybean Processors (Staley, ADM, Ralston Purina, Central Soya), Hymowitz, Bureau of Plant Introduction.

  Oct. 8. Cargill, Co-op Processors, drop Hymowitz, Soybean Production Pioneers, put Soy oil ahead of soy flour, change the order of many chapters.

  Nov. 3. Change title to *History of Soybeans and Soyfoods*. Put soy nuggets [fermented black soybeans] before miso.

  Nov. 7. Set up first 3+2 character cataloging codes for Soyfoods Center library and documents, e.g. Hym-81.


  June 18. Separate Fermented Tofu and Fermented Soymilk.

  July 22. Separate Soy Oil and Soybean Meal from Hydrogenated Soy Oil Products.


  Oct. 25. Start using % instead of percent in Margarine chapter.


  Nov. 19. Decide to do separate chapter on Lecithin. Retitle each country from “History of Soyfoods in X” to “History of Soybeans and Soyfoods in X.”


  April 17. Changed “at” to KW = (keyword) on cards.

  May 5. Dr. Fearn.

  Nov. Added Cereal-Soy Blends at Flour chapter, Iowa State University, History of Soyfoods and Health Foods in Los Angeles.

  1984 March. Meals for Millions, SFM-Rodale.


  Oct. 31. Completely restructure Soybean Production chapter into 16 parts. Discuss each by decade.


  1985 Jan. 19. Change ModProt to ProtMod, ProtIsol, etc.


  April 17th. Redo outline, giving each company its own line and bibliography, like Adventists. Print outline vertically. Address: Director, Soyfoods Center, Lafayette, California 94549. Phone: 510-283-2991.

265. **Product Name:** [Soyapan, and Soyamin {Soy Flours} (Full Fat, and Defatted; Toasted, and Untoasted)].

**Foreign Name:** Soyapan, Soyamin.

**Manufacturer’s Name:** Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.

**Manufacturer’s Address:** Ausschläger Elbdeich 62, 2000 Hamburg 28, West Germany.

**Date of Introduction:** 1985.

**How Stored:** Shelf stable.


• **Summary:** The soybean was introduced to Bulgaria from Russia or Romania at the 19th century. At that time, it was grown chiefly as a garden plant and Bulgarians used it as an inexpensive substitute for coffee. So they called it “garden (Russian) coffee” (gradinsko kafe). It was more popular in the Macedonian and northeastern popular parts of Bulgaria.

We can only speculate as to how the soybean was introduced to Bulgaria. Bulgarian gardeners were very famous throughout Europe, so many of them were working in the Austro-Hungarian empire, Russia, Poland, and even the USA. They travelled a lot at the middle and end of the 1800s. So it is quite possible that they brought soybean seeds first from the 1873 world exposition at Vienna, where the Chinese introduced soya beans and soyfoods. I suppose that was the first **popular** introduction of soya to Europe.

According to our Agricultural Encyclopedia published in 1937-1939 (vol. 2, p. 1615), the first scientific research on the soybean in an agricultural experiment station took place in 1902. But another source (Konova 1975) states that the first organized research trials were conducted during 1905-06 at the “Obraztsov Chifik” experiment station near the town of Rousse, using three soybean varieties. The yields were low (340-1210 kg/ha).

During World War I, when imports of coffee to Bulgaria were interrupted, the soybean (“garden coffee”) became widely known and grown in gardens. At this same time, the soybean also came to be called the “maslen bob” (the butter bean) and the “Yaponski bob” (Japan bean).

The earliest publications seen on soybeans in Bulgaria appeared in 1918, when two articles by A.S. Pentchev appeared in the Stopanski Pregled i Domakinstvo (Industrial Review and Household). However it seems that other popular articles were published before this year.

On 27 Dec. 1920, Prof. Dr. Asen Zlatarov reported the first **scientific** work on soybeans and soyfoods in Bulgaria before a session of the Bulgarian Chemists’ Society. During the period 1918-1922 Zlatarov gave numerous throughout Bulgaria about the importance of the soybean and about soyfoods as wholesome, healthy foods. At first many vegetarians were interested; there were many followers of Leo Tolstoy’s way of life which included vegetarianism, and the they were looking for more and better vegetarian foods for their communities.

In 1920-21 Bulgaria’s Central Agricultural Institute analyzed the content of soybeans grown in 12 parts of the country. Because of the heavy demand, a few soybeans were distributed for cultivation by agricultural offices (such as the Agricultural Office “Ganzin” in Nova Zagora, in 1921-22) but there were not enough seeds to meet the demand. In agricultural periodicals, there were big advertisements for soybeans (from those who wanted to buy or sell). Private farmers drove the market price up too high. During the 1920s there were no organized soybean exports, but the domestic was not used properly because the people were not accustomed to eating soybeans. The price of soybeans was lowered and many farmers were disappointed because they were hoping for a large profit on the crop. In 1926 the first soy flour was prepared by Dona Kalcheva, an assistant to Prof. Zlatarov at the University of Sofia. It was then produced commercially at the Stoian Balakchiev confection factory, owned by S. Balakchiev. By the end of the 1920s the area planted to soybeans decreased again.

The first real large-scale production of soybeans in Bulgaria began in 1932 with the establishment of the Soya Corporation (Soya-Co.). Soy flour was called “Soyasan” and was used in biscuits and dietetic breads. At the end of the 1920s it seems that some soy flours were imported: Aguma, Bollmann, and Ehrhorn (full-fat flours patented by Prof. Berczeller), flours from Italy (Maseli), and flours from Dr. E.C. Winkler of Vienna, Austria—who visited Bulgaria in 1935. In 1935 there was a successful Soya Exposition in Sofia, where soyfoods were widely demonstrated and served. Roughly 80% of the area planted to soybeans was controlled by Soya-Co. Soybean area rose from 15,574 ha in 1935 to 21,196 in 1939, 45,390 in 1940, and 72,965 in 1941. Address: Tsar Shishman 23, 1000 Sofia, Bulgaria.

### Summary

- Soybean introduction: 1873 world exposition in Vienna.
- First scientific research in Bulgaria: 1902.
- First organized research trials: 1905-06.
- First scientific articles: 1918.
- Major production: 1932.
- Large-scale production: 1932.
- Soybean area: 15,574 ha in 1935.
- Peak area: 72,965 ha in 1941.
- Soybean corporation: Soya-Co.
- Soybean exports: Limited.

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• **Summary:** These proceedings, consisting of 14 presentations by different experts, create a forum for the discussion of matters related to soya. Generous financial support was provided by the American Soybean Assoc. and the Edelsoja GmbH. Foreword by Ruediger Ziegitz, Oct. 1986.

Note: According to Dr. Karl Fangauf (7/89), this conference was held in 1985. No such conferences were held in 1986, 1987, or 1988. But a Second Hamburg Soya Conference will be held on 18-20 Oct. 1989 in Hamburg, West Germany. Address: Institut fuer Lebensmitteltechnologie–Getreidetechnologie, Technische Universitaet Berlin, West Germany.

268. **Product Name:** [Roasted Soynuts].
**Manufacturer’s Name:** Edelsoja GmbH. Div. of Lucas Meyer GmbH & Co.
**Manufacturer’s Address:** Ausschlaeger Elbdeich 62, 2000 Hamburg 28, West Germany.
**Date of Introduction:** 1986.

269. **Product Name:** [Roasted Soynuts].
**Manufacturer’s Name:** Edelsoja GmbH. Affiliate of Oelmuhle Hamburg AG and Lucas Meyer GmbH.

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Manufacturer’s Address: Ausschlaeger Elbdeich 62, D-2000 Hamburg 28, West Germany.
Date of Introduction: 1987.

270. Product Name: [Soyamin 70 {Soy Protein Concentrates}, and Soyamin 90 {Isolated Soy Proteins}].
Manufacturer’s Name: Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.
Date of Introduction: 1989.

271. Product Name: [Textratein {Textured Soy Flour}].
Manufacturer’s Name: Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.
Date of Introduction: 1989.
How Stored: Shelf stable.

272. Product Name: [Nuruflakes {Soy Fiber}].
Manufacturer’s Name: Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.
Date of Introduction: 1989.
How Stored: Shelf stable.

273. Product Name: [Nurugran {Soy Grits}].
Foreign Name: Nurugran.
Manufacturer’s Name: Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.
Date of Introduction: 1989.
How Stored: Shelf stable.

274. Product Name: [Nurulat {Full-Fat Soy Flour}].
Foreign Name: Nurulat.
Manufacturer’s Name: Edelsoya GmbH. Div. of Lucas Meyer GmbH & Co.
Date of Introduction: 1989.
How Stored: Shelf stable.

• Summary: This is the most comprehensive bibliography ever published on soy flour and cereal-soy blends. It is also the single most current and useful source of information on this subject available today, since 56% of all references (and most of the current ones) contain a summary/abstract averaging 84 words in length.

One of more than 40 bibliographies on soybeans and soyfoods being published by the Soyfoods Center, it is based on historical principles, listing all known documents and commercial products in chronological order. Containing 32 different document types (both published and unpublished, including many original interviews and partial translations of Japanese and European works), it is a powerful tool for understanding the development of this subject and related products from its earliest beginnings to the present, worldwide.

Compiled one record at a time over a period of 15 years, each reference in this bibliography features (in addition to the typical author, date, title, volume and pages information) the author’s address, number of references cited, original title of all non-English publications together with an English translation, month and issue of publication, and the first author’s first name (if given).

It also includes details on 653 commercial soy flour products, including the product name, date of introduction, manufacturer’s name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as references to and summaries of advertisements, articles, patents, etc.) are also given.

Details on how to use the bibliography, a complete subject and geographical index, an author/company

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index, a language index, and a bibliometric analysis of the composition of the book (by decade, document type, language, leading periodicals or patents, leading countries, states, and related subjects, plus a histogram by year) are also included.

The price of this 427 page spiral bound book (ISBN: 0-933332-66-1) is $213. All orders must be prepaid in U.S. dollars.

For Additional Information: Please contact William Shurtleff, Director, Soyfoods Center: 510-283-2991. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 510-283-2991.


• Summary: This is the most comprehensive bibliography ever published on soybean crushing, soy oil, and soybean meal. Its scope also includes: Statistics on the soybean oil and meal industries, use of soybean meal in feeds, use of soybean cake or meal as a fertilizer, and the efficiency of animals in converting feeds into human foods. It is one of the most useful sources of information on this subject available today, since 53% of all references (and most of the early and current ones) contain a summary/abstract averaging 121 words in length.

One of more than 40 bibliographies on soybeans and soyfoods being published by the Soyfoods Center, it is based on historical principles, listing all known documents and commercial products in chronological order. Containing 36 different document types (both published and unpublished, including many original interviews and partial translations of Japanese and European works), it is a powerful tool for understanding the development of this subject and related products from its earliest beginnings to the present, worldwide.

Compiled one record at a time over a period of 17 years, each reference in this bibliography features (in addition to the typical author, date, title, volume and pages information) the author’s address, number of references cited, original title of all non-English publications together with an English translation, month and issue of publication, and the first author's first name (if given).

It also includes details on 54 commercial soy products, including the product name, date of introduction, manufacturer’s name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as references to and summaries of advertisements, articles, patents, etc.) are also given.

Details on how to use the bibliography, a complete subject and geographical index, an author/company index, a language index, and a bibliometric analysis of the composition of the book (by decade, document type, language, leading periodicals or patents, leading countries, states, and related subjects, plus a histogram by year) are also included. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 510-283-2991.


• Summary: The first conference was held 4 years earlier. Contains a foreword plus 14 papers by various authors, each cited separately. This conference was sponsored by Edelsoja GmbH (Hamburg, Germany), the American Soybean Association (Hamburg), and Cargill B.V. (Netherlands). Address: Berlin.


The author’s R&D team at the Osem company in Israel was given the assignment to develop chocolate spreads without any milk solids. This was done for religious reasons since orthodox Jews are not allowed to mix meat and dairy products. “Kosher products can be Kosher-Meat (to be eaten without any milk or other dairy products), Kosher-Milk (to be eaten without any meat products) or Kosher parve (to be eaten with dairy or meat products). Ideally the food processor wants to develop, as much as possible, foods which fall in the third category so that the consumer can consume the food at any meal, be it meat or dairy based meals.” Address: Osem, Tel-Aviv, Israel.


• Summary: This full-page color ad shows that Edelsoja and Lucas Meyer are two parts of one company. The square
Edelsoja offers you the full range of high quality protein products from the soya bean. Our experience of many years is at your disposal. Edelsoja—the soya protein specialists.
logo states: “Edelsoja–The Protein People.” The text reads: “Edelsoja offers you the full range of high quality protein products from the soya bean. Our experience of many years is at your disposal. Edelsoja—the soya protein specialists.”

Address: Ausschlaeger Elbdeich 62, D-20539 Hamburg, Germany. Phone: 040/789 55-0.


**Summary:** “SIAL in Paris is always one of the biggest and best attended food product exhibitions and 1992 was no exception. Soya foods were well represented and some new products were launched including Celia’s new *Biostar Blinis* pancake mix; a new soya and rice dessert from Laiterie Ladhuie, frozen soya based meat analogues from Phytikos, Gemasosa from Abbaye de Sept-Fons (see p. 5 for details of these products).

“Other companies presenting soya foods included: Sojinal, France—a range of soya products including soya paste, milks, desserts, meals; Zonnatura, Netherlands—soya milks, desserts and vegetarian meat replacements; Tonputs, Netherlands—frozen Soyschnitzel, Sobyaburger and Soyasausage; Bakker Lekkerkerk, Netherlands—the *Vivera* range of chilled and frozen meat alternatives; l’Abbé Bisson, France—biscuits with soya, raisins or chocolate; Vitagarmerine, France—Soya bars and biscuits; Yeo Hiap Seng Ltd. Singapore—Soyosauce, soya drinks and salted soya beans; Minerve SA, France—*Soja Plaisir* range of soya based sauces, bean sprouts and bean sprout salads; Céralé, Wander, France—Soya based drinks, desserts, pastas, sauces, Pains Grillé, biscuits; FPS, France—vegetable protein ingredients; Distriborg—soya drinks, desserts, sauces, meats, biscuits and pastes; and Tivall Vegetarian Food Products, Israel—vegetarian meat alternatives.

“Dusseldorf, Germany was the venue for FIE 92. Of the 451 international companies present several major soya protein companies exhibited including: Solnuts, Netherlands—showing their new range of custom-made food ingredients; Worlée GmbH, a German company, specialising in dried ingredients and soya products; Edelsoja, Germany—soya protein ingredients; Dutch Proteins and Services, Netherlands—soya protein products; Protein Technologies International, Germany—isolated soya proteins; A.E. Staley Manufacturing Co., US—Gunther range of soya ingredients; Mandarin Soy Sauce Inc, US—liquid and dried soy sauces; ADM Ingredients Ltd., UK—flours, flakes, grits, concentrates, isolated and textured products; Solbar Hatzor, Germany—*Contex* textured soya concentrates; Celia Technologies, France—dehydrated soya milk; GMB Proteins, UK—Bontrae textured soya proteins; Central Soya Aarhus, Denmark—soya protein concentrates; Cargill, Netherlands—defatted soya flours, grits and textured soya proteins; Alternative Food Ingredients (AFI), France—soya proteins and fibres; Sogip, France—soya flours, concentrates and textured soya products; Stern, Germany—full-fat soya flours, grits, concentrates, isolates, textured proteins, soya bran, full fat soybean snacks (expanded with hulls) and *Sternpur* lecithin.”


**Summary:** This full-page black-and-white ad lists eight products: Nurupan (toasted full-fat soy flour, debittered, microfine milled), Soyapan (full-fat soy flour, enzyme active, microfine milled), Nurufakes (toasted full-soy flakes, debittered), Nurugran (toasted full-soy grits, debittered), Soyoco (toasted full-soy kernels), Soygrits* (defatted, deoiled soy grits, lightly or strongly toasted), Sovyvital (edible soy bran, rich in dietary fibre), Soypur (toasted full-fat soy flour). * = Distributed by Lucas Meyer. A logo states: “Edelsoja–The Protein People.”

This ad also appeared in *Soya Bluebook Plus*. 1995. p. 82. Address: Ausschlaeger Elbdeich 62, D-20539 Hamburg, Germany. Phone: 040/789 55-0.


**Summary:** Food Ingredients Europe, the international exhibition of food ingredients, was held this year on Oct. 4-6 in London, England, at Earl’s Court. This was the biggest FIE in its 9-year history, with more than 500 exhibitors. The American Soybean Association (ASA) had a very successful booth at the U.S. Pavilion. One of the most interesting new products was Befine, from a company named VPS Europe. This unique, patented soya-based granule, sold fresh or frozen, mimics the texture of ground meat but it is not TVP or textured soy protein concentrate. Made from organic whole soybeans, it contains 18% protein. ADM Protein Specialities Division introduced their new WMR4, a dry soymilk based on soy protein isolate. Protein Technologies International exhibited Supro brand Isolated Soy Protein and Fibrim brand soy fiber. A line of texturized Danprotex (H-29, B-39, and F) and functional Danpro (DS) soy protein concentrates were launched by Central Soya Aarhus A/S, a member of the Erdisania/Beghin-Say agro-industrial group. Kikkoman Trading Europe exhibited their naturally fermented soy sauces in liquid and dehydrated dorms. Other soy sauce exhibitors included Henry Lamotte GmbH and Mandarin Soy Sauce Inc. Loders Croklaan exhibited a new soya concentrate line. Alsace-based Sojinal, which supplies soy products to the food industry, exhibited along with their new sister company, Sevenday. SFI Netherlands BV (SFI = Special Food Ingredients, formerly Solnuts Inc.) exhibited their line of dry roasted soynuts. Also present were Stern Lecithin and Soja GmbH & Co. KG, Sapa and Dafa Associés (makers of Dafasoy for the food, dietetic, and pharmaceutical industries), Soya Mainz & Co. KG and Solbar Hatzor (soy protein concentrates), Dalgety Food Ingredients International (with the former Spillers Premier Products), Lucas Meyer
GmbH (with a phosphatidyl choline lecithin powder and a de-oiled lecithin for frozen doughs), Edelsoja GmbH, Celia SA, Freeze-Dry Foods GmbH, and GMB Proteins (a division of Bush Boake Allen Ltd.). The address and fax number of each company is given.

283. **Product Name:** [Soyoco {Toasted Full-Soy Kernels}].
**Manufacturer’s Name:** Edelsoja GmbH.
**Manufacturer’s Address:** Ausschlaeger Elbdeich 62, D-20539 Hamburg, Germany. Phone: 040/789 55-0.
**Date of Introduction:** 1994.

284. **Product Name:** [Sovital {Edible Soy Bran}].
**Foreign Name:** Sovital.
**Manufacturer’s Name:** Edelsoja GmbH.
**Manufacturer’s Address:** Ausschlaeger Elbdeich 62, D-20539 Hamburg, Germany. Phone: 040/789 55-0.
**Date of Introduction:** 1994.

285. **Product Name:** [Soypur {Toasted Full-Fat Soy Flour}].
**Foreign Name:** Soypur.
**Manufacturer’s Name:** Edelsoja GmbH.
**Manufacturer’s Address:** Ausschlaeger Elbdeich 62, D-20539 Hamburg, Germany. Phone: 040/789 55-0.
**Date of Introduction:** 1994.


• **Summary:** On the cover is a jigsaw puzzle map of the world on a blue background. The inside front cover and next two pages contain full page color ads from Lucas Meyer, “The Lecithin People” and “Edelsoja: The Protein People.” On the back cover is a color ad from ADM promoting their vitamin E.

The Foreword begins: “The next millennium is just around the corner. A new age, perhaps, in which increased interdependence and trade are coupled with the free flow of information. A new era where the efficient utilization of the Earth’s resources is a key factor in all activities of business and daily life.

“One of Soyatech, Inc.’s founding principles is the dictum that, ‘the world would be a better place if it used its agricultural resources more efficiently—for food, for animals and as a renewable industrial product source.’ We continue to see this as a primary goal of our publication and information services.”

The Bluebook’s new title “more aptly describes the directory’s continuing evolution to encompass the expanding field of plant-based proteins and oils.”

Another new section, near the front of the book, titled “Translations of oilseed terminology” (p. 9-15), includes over 300 terms related to oilseeds translated from English into German, French, Spanish, and Portuguese.

Note: This is the earliest English-language document seen (Nov. 2014) that contains the term “plant-based proteins” (or “plant-based protein”). Address: 318 Main St., P.O. Box 84, Bar Harbor, Maine 04609. Phone: 207.288.4969.


• **Summary:** See next page. The Bluebook has a new title (see separate “serials” record). On the cover is a rectangular [Mercator projection] map of the world made of the different oilseeds now included in the Bluebook: Soya, corn, cottonseed, canola, rapeseed, sunflowerseed, palm kernel, palm, coconut, and peanut. The inside front cover and first page contain full page color ads from Lucas Meyer, “The Lecithin People” and “Edelsoja: The Protein People.” On the back cover is a color ad from ADM promoting their vitamin E.

The Foreword begins: “The next millennium is just around the corner. A new age, perhaps, in which increased interdependence and trade are coupled with the free flow of information. A new era where the efficient utilization of the Earth’s resources is a key factor in all activities of business and daily life.

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• Summary: The Lucas Meyer Co. was started in June 1923 in Hamburg, Germany, by Lucas Meyer, Sr. (born in 1893) as a business exporting pharmaceuticals from Germany to Africa and South America. He ran away from home and school at about age 14 (1907) to become a sailor. Before and during World War I, he had been a captain on a sailing vessel, but when the German fleet was confiscated after the war, he had to find a new job. Initially the company engaged in a wide variety of activities, including a shipping line and chemicals trade.

First a little background on early soy lecithin: In Aug. 1923 Hermann Bollmann of Hamburg was issued his first lecithin patent; his emphasis was on recovering the lecithin from soybean oil; he believed that lecithin could become a new commercial product. In Jan. 1925 the first commercial soy lecithin appeared—in a scientific experiment; it was provided by Dr. Bollmann of Hansa Muehle. Before that time, most lecithin / phospholipids came from egg yolks. In 1929 the first commercial lecithin was sold (by Joseph Eichberg of the American Lecithin Co.) in the United States; that lecithin was imported from Hansa Muelhe of Hamburg, Germany. The wet gums in soybean oil impart an undesirable flavor to the oil, so they are also removed to improve the quality of the oil.

Lucas thinks that Lucas Meyer Co. obtained its first lecithin in about 1946-1949, shortly after World War II; it was made in the USA, since all the German lecithin factories had been destroyed by Allied bombing during World War II. The lecithin was used as a minor ingredient in the pharmaceutical formulations his grandfather was selling. Lucas has been told that the lecithin was stored in the basement of his parents’ home, where he grew up. Starting in the mid-1950s, the company moved into a building on Ausschlaeger Elbdeich Str. in Hamburg and before long began processing soy lecithin. Lucas remembers (as a child) seeing lecithin processing equipment (for filtration, blending, etc.) at the Lucas Meyer plant in Hamburg. In about 1958 the company changed from a sole proprietorship to a corporation (GmbH). In about the mid-1960s the company began to make specialized, refined, value-added lecithins—such as de-oiled lecithin, partly fractionated lecithins, and products for non-food applications.

Lucas Meyer Co. was always owned completely by his family—until it was sold in 1999. Edelsoja was a joint venture between Lucas Meyer and Oelmuehle Hamburg. In about 1975 they started their first U.S. venture with a company named VGF Organics in New York. In 1978 Lucas Meyer established a branch in Decatur, Illinois. They bought their lecithin locally, processed it in their own way, and marketed it in an original way as “Lucas Meyer–The Lecithin people.” Likewise: “Edelsoja–The Protein people.” The keys to success are marketing, and application technology and support. It took 8 years for that office to break even and 17 years to get a 15% market share in the USA.

Lucas (III), the grandson of the founder, was born in 1949. Lucas remembers his grandfather well, since he lived until 1979. Lucas’s father died in about 1980, but his mother is still alive. Both his father and mother worked at the company from as early as he can remember. He started as an apprentice in a bank, then in 1975 graduated with an MBA degree in business administration from the University
of Hamburg. Lucas then established his own company in Geneva, working as a banker in international finance. In 1976, when his father had a stroke, he joined the company. For 6 months he commuted between Geneva and Hamburg, then he decided to move to Hamburg and to start managing Lucas Meyer GmbH. During the 1990s, his company focused on the nutritional benefits of lecithin. In 1999 he sold the business to SKW; Degussa gained control of the Lucas Meyer Co. archives, and it will be hard for him to get any documents from them even though they are still in Hamburg. The old Lucas Meyer organization is still largely intact. Address: Biovalor AG, Heilwigstrasse 50, D-20249 Hamburg, Germany. Phone: +49 700 2469 2567.


• Summary: Based on his 2002 PhD thesis at Hannover University. A very comprehensive bibliography, although many of the references are incomplete. Contents: Foreword. Introduction. History of the soybean as a raw material and foodstuff until 1933. Biology, origin and distribution. Breeding, cultivation and utilization in Germany.

Part I: Breeding and cultivation of soybeans. Breeding in National Socialism: The place of breeding research, food freedom as a goal of Nazi agrarian and nutrition policy, plant breeding on the upswing (Aufwind), reaction of soybean breeders to the [Nazi] seizure of power, results of soybean breeding and cultivation trials. Cultivation in National Socialism: Reorganization of plant varieties, soybeans in cultivation trials 1934-1942, from breeders to peasants–growing out varieties and industrializing their production from 1936, “The German soybean marches”–Soybean cultivation and the press, new areas of cultivation in the in the framework of German expansion of power in Europe.

Summary:

Part II: Utilization of soybeans. From the oil plant to the protein plant–Soybeans as a foodstuff, the nutrition policy of the “Third Reich,” from “nutrition in the world economy” to “nutritional harmony,” making an ideology out of food, soybeans, nutritional freedom, and the rationalizing of food. The introduction of the soybean as a foodstuff: Soya in private households, production and sale of soy flour (Sojamehl), soybean flour in the feeding of the community, the “Nazi-bean”–the soybean in the feeding of the armed forces, summary.

Part III: Soybean cultivation in Southeastern Europe. The greater European economic realm and southeastern Europe, the world economy vs. the domestic economy, the plan of the larger realm economy as a strategy for solving crises, the concept of the larger realm economy as an integration formula of the German elite, the Central European economy’s day, the cultivation of trade politics depending on southeastern Europe, the larger European economy and the new order in the “Third Reich,” the planes of economic development in southeastern Europe, the world economic crisis and its consequences for German trade in southeastern Europe, the interests of I.G. Farben in southeastern Europe, the soybean contracts, the development and significance of soya compensation, soybean production in the specialty world (Fachwelt) and in the press.

Cultivation in southeastern Europe: Rumania, Bulgaria, Yugoslavia, Hungary, and Greece, the role of soya imports in the German economy. Summary.

Part IV: Concluding considerations. Summary. Outlook. Appendices: Abbreviations (p. 299). Archival sources. Bibliography (Literature): Primary literature (261 refs), contemporary (with the Nazi period) articles and treatises with no author given (84 refs), secondary literature: Resources (Hilfsmittel) and compilations of sources (Quelleneditionen) (18 refs), monographs and theses (22 refs).


Ladislaus Berczeller, the Hungarian scientist who developed Edelsoja in Vienna in 1923, Edelsoja, is mentioned on pages 142, 50-51.

Photos show (see next page):

(1) A notice about Edel-Soja in a publication for housewives in 1932 (p. 50).
(2) An announcement of soybean cultivation in a weekly publication in Kurmark in 1939 (p. 101).
(3) An advertisement from the Edelsoja works in Vienna in 1939 (p. 144)
(5) An advertisement for whole soy flour (1941) (p. 182). At the bottom right is mentioned the New Edelsoja Co., Inc. of Berlin.

Note 1. I.G. Farbenindustrie is indexed as “IG Farben” and is mentioned on at least 56 pages in this excellent book.

Edelsoja is mentioned on pages 40, 42-51, 143-46, 148-50,152, 159, 176, 182 footnote. Address: Hanover, Germany.


• Summary: Contents: 1. “Soybean: The wonder plant”: location / positioning (Verortung) and methodology. Source

**Summary:** Basics: About us. News. Knowledge Base. Digital collection. Events. Downloads. Relationships. Links. The nonprofit association has a magazine titled Szoja. The organization has a staff of three people. Their e-mail is info@magyarszoja.hu. It looks like the association was established in about 2011. There is a long section (in Hungarian) about Laszlo Berczeller, and his tragic life devoted to soy. Topic of the month: Soy devoted to human foods. Describes each of the many soyfoods and edible soy ingredients.

Tweets: 2015 Jan. 23–Hungary is committed to make its whole milk, egg and meat production GMO-free, announced the ministry of agriculture yesterday.

2015 Jan. 20–Hungarian agricultural minister initiated the alliance of GMO-free countries.

2014 Dec. 23–German supermarkets begin to reject GM-fed animal products. This puts pressure on Britons to do the same.


**Summary:** Lucas Meyer never crushed soybeans. They got their lecithin, soy flour and soy proteins from soybean crushers.

“Sometimes company history is very complex. At the time (July 15, 1999) when SKW acquired Lucas Meyer–SKW belonged to VIAG.

“In 2000 VIAG merged with VEBA to become EON—and SKW together with Degussa-Huels became the new Degussa AG.

“The food business didn’t fit the company any more, therefore Degussa (a VIAG company) sold the food business (which included the former Lucas Meyer business) to Cargill (9 September 2005). Cargill was interested in expanding their food business.
"Edelsoja—according to my files (at least in 1974)—Edelsoja was the 50:50 joint venture of ADM and Lucas Meyer. ADM was the producer and Lucas Meyer was selling the material."

Here are some basic facts about Lucas Meyer:
Address: Edelsoja GmbH–Ausschläger Elbdeich 21
Hamburg
Share Capital: Deutsche Mark (German Mark) 1 Million
GF (Geschäftsführer) = Managing director: Arnd von Wissel, Jens Heiser
Ges. (Gesellschafter) = Partner: Ges.: Oelmühle
Hamburg AG (500TDM), Lucas Meyer (500TDM)
Prok. (Prokura) = Authorized officer: Karl Otto Tielker
Umsatz = Sales 1989: Deutsche Mark 30 Million.
Employees: 36
Gegründet = Founded December 18, 1959
April 4th, 1974 Hamburg HRB (Handelsregister B)
Commercial register 16400 (This is the source of this information!)

Former Lucas Meyer employees established their own business:
Dr Herbert Rebmann = 1977 Lipoid GmbH http://www.lipoid.com/en
Dr. Kuno Strauss = 1981 Extrakta Strauss www.extrata.de
Dr. Michael Schneider = Lecithos http://www.lecithos.de
Peter Fismer = Fismer Lecithin http://www.fismer-lecithin.com
Pierre Labourd = 2006 Novastell http://www.novastell.com

294. Lenard, Andrew. 2016. Re: Concerning Dr. Ladislau Berczeller and Samuel Deutsch. Letter (e-mail) to William Shurtleff at Soyinfo Center, July 5. 2 p.
• Summary: Dear Bill:
  “I am a reader of Jewishgen’s daily bulletin and I saw your announcement about writing a biography of László Berczeller.
  “It happens I know of him, although I never could and did not meet him in person.
  “My maternal grandmother was the wife of the surgeon Jónás Báron, medical director of the Jewish Hospital ("Zsidókórház") of Budapest from the 1870’s to his death in 1911. I still knew dr. Báron’s widow as an elderly woman who lived in Budapest and died about 1938. That grandmother had a somewhat younger sister, named Josephine, nicknamed Józsa. My folks referred to her as "Józsa néni." Josephine married another doctor by the name Imre Berczeller. Imre and Josephine had three sons: László (nickname “Laci”), Pál (“Pali”), and Antal (“Anti”).

Note: Thus, Dr. László Berczeller’s parents were named Imre and Josephine née Deutsch Berczeller. Dr. Berczeller had two younger brothers.
  “In early days the two families were close. I remember my mother telling me long ago, how the whole family got together for summer holidays at their villa in Siófok on Lake Balaton’s south side. My mother remembered, from the time of her young Girlhood that the Berczeller boys and her own brothers formed a jolly band and she confused who was brother, who was cousin.

“Two of the Berczeller boys survived into the post-World War II era, and lived on for a while in Budapest. I know nothing of a next generation (if it existed). Family lore had it, so I became aware of László’s career as a chemist, and particularly his important role on the utilization of soy beans. As far as I know the soy bean was not a traditionally cultivated food plant [in Europe], but now it features prominently in the contemporary food and animal feed economy of the world, along in company with rice, corn, and wheat.
  “I also remember being mentioned that László developed late in his life some kind of tragic mental illness that ended up in his confinement in France.

“I may mention that I am an avid collector and if possible preserver of family documents and memorabilia from the past. As such I remember and own a charming old group photograph showing the Báron and Berczeller families, with the three Berczeller boys and their cousins the Báróns. One of the latter, the late Julius G. (“Gyula”) Báron was quite a remarkable man himself, very well known to me, who died in 1973.
  “Let me know if I may be helpful in any way to your project. And in time, if you agree, I would not mind obtaining a copy of the biography you are preparing.

Follow-up e-mail on July 6 in reply to questions from Shurtleff: “Yes. Imre was a doctor, specifically ob-gyn. and as for Józsa, she was born Josephine Deutsch. The last name is quite frequent among Hungarian Jewish families. And, by the way, the family patriarch, Samuel Deutsch, father of Josephine and my grandmother, was listed on an old birth certificate as “posztókereskedő” (i.e. broadcloth merchant), at which he must have made a fortune in mid-19th century. He had a rather fancy 4-5 floor apartment house built on
Budapest’s central “Erzsébet tér” (Elizabeth Square), in which he, and his son-in-law Jónás Báron’s family lived. He also owned a fancy vacation villa on the south shore of Lake Balaton at Siófok.

“And, there survived in our family a great 3/4 length painted portrait of him in his young manhood, around 1870 or so. That painting was donated by my parents to Debrecen’s “Déri Muzeum” upon their emigration to America in 1946. It was done by the very well regarded Hungarian portrait painter Barabás. I own a very good photographic copy of it that hangs in our bedroom. You are welcome to it if you so desire. Samuel Deutsch was, as you see, your Laszló Berczeller’s maternal grandfather.” Address: Indiana.


• Summary: Genealogical questions: Laszlo (German: Ladislaus) Berczeller, was born in 1890 in Budapest, Hungary, into a wealthy Jewish medical family. Was he really born in 1890 (probably, see 1903 photo) as his marriage certificate says? Or was he born in 1885 as his two biographers (Arnould 1960; Baruk 1974) say?

In a document from 1929 we read: “Dr. Berczeller holds degrees from three great universities in the Old World—Munich, Strasburg, and Budapest.” From what university and when did he earn his PhD degree? What was the subject of this thesis? What degrees did he earn from the other universities and when?

His wife left him and became a Nazi supporter—strange as that sounds!! Was there a formal divorce? If yes, when and where?

We believe from published sources that he died on 14 Nov. 1955 in Switzerland (city unknown) at the Saint-Maurice Mental Home. He was alone and unknown. What was the exact name of the city or town where he died? Where was he first buried? For how long. Where next? Where are his remains buried now.

Did he personally give Hansa Muehle a license to manufacture his Edelsoja soy flour? When and for what fee arrangement?

\ How, when and where did he lose control over his various patents and Edelsoja products? Did he receive any compensation? How did the powerful I.G. Farben-trust acquired the license to the Berczeller patent rights for Germany, Austria, and possibly some other countries.

An asterisk (*) at the end of the record means that SOYINFO CENTER does not own that document.
A plus after eng (eng+) means that SOYINFO CENTER has done a partial or complete translation into English of that document.
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