

Changes in promotion of artificial fertilizers in the context of business interests of family firm A. Schram [1]

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Abstract. *The aim of this paper is to map how the promotion and advertisement of fertilization developed from the early 19th century till the end of the interwar period. It tracks examples of individual types of media used for advertising and tries to analyze the ways in which they communicate to the consumer. Particular emphasis is placed on the motivation of actors, that is how the business interest of the manufacturers shaped the form, type of media, language, and later psychological aspect of advertising. To illustrate the described changes on a particular example, the paper simultaneously tracks the evolution of superphosphate market as it was the dominant fertilizer throughout the period, along with the history of the family firm A. Schram and the ways in which its relationship toward advertisement has evolved.*

Keywords

artificial fertilizers, superphosphate, advertisement, history, A. Schram, Fosfacid

1. Introduction of artificial fertilizers in Bohemian lands

First usage of modern fertilizers can be traced to late 18th century Britain. Among the first daring experiments was the usage of bone meal, first publicized by James Hunter in 1774. By the early 19th century, animal bones were already being imported to Britain, along with the first experiments with South American guano. However, the introduction was driven mainly by experiments and was being hampered by the then mainstream theory concerning the nutrition of plants, that is Albrecht Thaer's so called "Humus theory". It wasn't until the 1840's with the wide dissemination of the theory of mineral nutrition of plants by Justus von Liebig, that scientific knowledge could provide definitive evidence supporting the notion that fertilization of crops using mineral compounds, not just organic matter, was crucial to achieving increased yields. [1][3] Liebig's work constitutes a watershed moment that marks the beginning of regular fertilizer usage in agriculture.

Within the Bohemian lands number of progressive agronomic experimenters, notably František Horský von Horskýfeld, also attempted to replicate some of earlier successful tests. Quintessential breakthrough was the popularization of Liebig's work by Filip Stanislav Kodým, who publicized his findings in various farmer's almanacs and journals. [4]

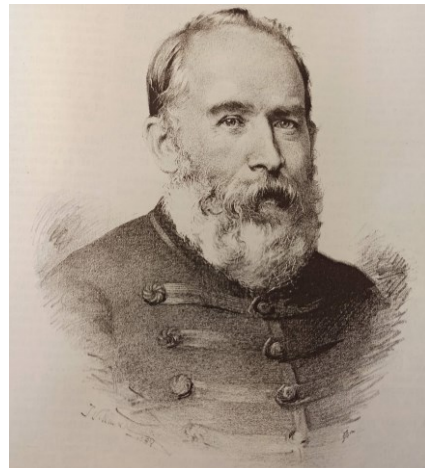


Fig. 1. Filip Stanislav Kodým [5]

The trials were conducted mostly on large manor estates. However, the skepticism towards the prospect of using mineral compounds to fertilize crops remained high even there. One example was the experiments with various types of bone meal performed on the Bzí estate by its administrator, Karl Geyer Freiherr von Ehrenberg, in the early 1830's. After positive findings he instructed other estates within the vast Schwarzenberg domain to follow in the introduction of bone meal fertilizer. However, among others the Fürst of Schwarzenberg himself held a lot of reservation about these plans. [4] Similar reception elsewhere meant that the usage of bone meal and spodium (burned bones) didn't become widespread before the mid-century.

Next major innovation came in the form of superphosphate, the first genuine artificial fertilizer. It was manufactured by dissolving bones or later phosphate rock in acid, usually sulfuric or rarely nitric. [6][7] First commercial factory manufacturing superphosphate was

built in England in 1843 by Henry Gilbert and John Bennet Lawes. By the 1850's, number of plants producing phosphorus fertilizers were being founded in continental Europe, including Bohemia, but it wasn't until the 1870's, that factories capable of manufacturing superphosphate on industrial scale were established, among others the firms J. D. Starck in Třemošná, Akciová továrna na vyrábění lučebnin in Kolín, F. J. Auersperg in Slatiňany or Akciová továrna na lučebniny in Pečky.

2. Foundation of the firm A. Schram

Among the first industrial producers of superphosphate in Bohemian lands was the family firm A. Schram. It was founded in Prague in 1868 by August Schram, [8] a German speaking merchant originally from Falkenau (Sokolov). His original sphere of business activity lay in trading and forwarding of various chemical goods. In 1869 he struck an agreement with Alfred Nobel, the inventor of dynamite, and the German branch of his nascent explosive empire. Because of this he became a major distributor of dynamite in Bohemian lands, also helping to establish the first dynamite factory in Austria-Hungary in Zámky by Prague in 1870. The high initial demand for dynamite achieved him high levels of return on capital, growing his firm's equity twenty times over between 1868 and 1873 to around 62 000 Austro-Hungarian gulden. [9]



Fig. 2. August Schram [10]

Thanks to his initial successes August Schram was able to source enough capital to establish his own manufacturing plant in early 1874. It was located in Lísek by Prague, close to the aforementioned dynamite factory, from which he sourced waste acid that he used to manufacture superphosphate. As feedstock he used another waste product: spodium (burned bone) that was used in sugar refining as a filtration during saturation, but eventually needed replacing. [11] He therefore kept the material cost low, which allowed for continued growth of capital. Even though the initial scope of the enterprise was rather diminutive, it managed to produce close to 630

metric tons of superphosphate in 1874, more than doubling it to 1 279 metric tons in 1875. [12]

3. Promotion of fertilization until the end of the 19th century

As stated earlier, the early 1870's saw the founding of many new industrial manufacturers of superphosphate. With the supply of fertilizers build not only on the then meagre demand but in anticipation of future spread of fertilizer use, the public enlightenment about the necessity of their use grew more important. Now it was not only in the interest of public educators hoping to raise the general level of economic effectiveness of agriculture, but it also became the business interest of manufacturers.

The firm A. Schram also realized this. That is why it published its own educational brochure in 1884, in which it promoted the idea of using artificial fertilizers in addition to manure to ordinary farmers: "Inasmuch as cow manure will not suffice by intensive soil cultivation ... - only by the supply of artificial fertilizers can the farmer hope to keep the high yield of his soil." [13] However, the large estates, mostly owned by the nobility, remained the main drivers of sales up until the end of the 19th century. [14] This had mainly two reasons. Firstly, these large estates were likely to be run by qualified professionals, who were more inclined to adopt agronomical innovations. Secondly, unlike most other types of homesteads, they had at their disposal enough capital to be able to continuously afford fertilizers, which remained quite expensive to most farmers.

With the concept of advertisement itself still young, its inception in Austro-Hungary can roughly be dated to the 1860's, [15] it meant that the promotion was fairly plain and terse. That can be observed in the newspaper adverts of the time. One example is given in figure 3.

Superfosfáty,

spodnia, kostní moučky, guana, čilský ledek, síran
autonaty, soli draselnaté, strusku Thomasovu, kaínit,
jakož i veškeré druhy umělých hnojiv.

Poštornská pat. sádra superfosfátová,
nejlepší prostředek ku konservování chlévského hnoje, 271
dále
velmi soustředěné, čisté soli hnojivé, **čpavkové a draselnaté**
superfosfáty, hodící se ku pěstění cukrovky, chmele, vína,
tabáku, jakož i pro zeleninu a zahradní kultury
odporučují

továrny na kyselinu sírovou a umělá hnojiva
v Břeclavě-Poštorné a Lísku-Roztokách

A. Schram, Praha,
Ústřední kancelář, Jindřišská ul. 27.

Fig. 3. One of the typical newspaper advertisements of A. Schram, this one from 1894. [16]

Given that all manufacturers were selling in essence the same product, they tried to differentiate themselves by advertising unique fertilizer mixes. Nevertheless, the largest emphasis was placed on what concerned customers

of the time the most – quality. Since fertilizers containing relatively small amount of effective nutrients were common, either by intent or through poor manufacturing processes, firms like A. Schram were trying to associate their name with assurance of quality.

The second major media of the time most suitable to promote one’s business were the various agricultural and industrial trade shows. Additional benefit of attendance was the possibility of obtaining various diplomas or medals, which could be used to further promote product quality. First recorded participation of the firm A. Schram in such an event was during the agricultural fair in Bubeneč in 1875. [17] Although they grew ever more important towards the end of the 19th century, after the nationalistic struggles that erupted during the 1891 General Land Centennial Exhibition in Prague, [18] it became increasingly difficult for firms to advertise to both Czech and German customers in the Bohemian Lands. As an ethnically German firm, A. Schram tried not to overemphasize its language and ethnic identity, especially since most of its customers were ethnically Czech.



Fig. 4. The exhibition stand of the firm A. Schram during the trade fair in Prague in 1925. [19]

4. The business environment changes – increased competition and wider range of customers

By the turn of the century the firm A. Schram grew to one of the biggest producers of fertilizers in Bohemian lands. It managed to establish new factories in Poštorná by Břeclav in 1884 and another in Lovosice in 1904. They were favorably situated in the most fertile regions of South Moravia and the Elbe lowland. All plants combined, the firm employed between 300–400 workers and clerks. The production of superphosphate, still by far the most common fertilizer, had risen to 15–20 thousand metric tons yearly.

The 1890’s saw a fundamental transformation of the Austro-Hungarian market for artificial fertilizers. First of all, a number of new factories were being established, for instance in 1888 in Petrovice by Karviná, 1891 in České

Budějovice, 1893 in Slaný and 1895 in Přerov. Additionally, cheaper imports from Germany created cost pressures that were diminishing the profit margins of domestic producers. [20]

Last but not least, superphosphate manufacturers faced increased competition in the form of Thomas phosphate. It is created during the smelting of steel using the Thomas process. Phosphorus contained in the iron ore is drained into the slag, which can then be ground up and used as a fertilizer in agriculture. As it is essentially a waste product of the steel industry, the extensive expansion of steel production throughput posed a significant competition to the superphosphate manufacturers.

Therefore, the idea of some form of industry-wide cooperation, was gaining in attractiveness. After several initial attempts a comprehensive cartel agreement was struck in 1897. It was called the “*Verband der oesterreichischen ungarischen Superphosphatfabriken*” and it united most of the manufacturers from Austria-Hungary. [21] Its core function was the negotiation of production quotas between its members.

The cartelization of the industry had other effects as well, either positive or negative. Most importantly in regards to the subject of this paper, it changed how advertisement worked. It was no longer crucial for individual firms to try to differentiate their product. Even though a good name of the brand and the range of products remained relevant, mutual competition was stifled. Therefore, it was possible to focus on attempting to broadly raise the demand for fertilizers. The increase would then be more or less evenly distributed to each producer through the quota system.

From this point onwards, the advertisements shifted its primary focus towards small to medium scale homesteads, that were slowly but surely introducing more regular and intensive fertilization on their fields. As can be observed in figure 5., the use of superphosphate was dictated above all by homestead size well into the interwar period. Also, it was on the small and medium sized farms that it faced the most competition from Thomas phosphate.

	superphosphate (in kg per ha)		Thomas phosphate (in kg per ha)	
	1909- 1913	1926- 1930	1909- 1913	1926- 1930
2-5 ha	28	32	29	29
5-20 ha	33	35	31	28
20-100 ha	41	49	33	27
> 100 ha	64	76	28	27

Fig. 6. The usage of different Phosphorus fertilizers on the territory of Czechoslovakia sorted by the size of homesteads. As can be seen, the usage of superphosphate on large estates remained more than double than that on smallest homesteads, even in the interwar period. [22]

Additionally, the cartel agreement soon provisioned for the pooling of funds intended for promotion from individual members (manufacturers). This allowed to

sponsor more capital-intensive media outlets, that would be unattainable for individual producers. The full potential of this wouldn't fully develop until the interwar period, for now the largest media remained the extremely popular farmer's almanacs. Because of this the cartel funded the publishing of many of them. [23]

They also contained new depictive ways of promoting the effects of fertilization, one of which can be seen in figure 6. – putting sugar beets of different sizes next to one another, the diminutive size of the unfertilized beet paling in comparison to the others. This becomes a standard theme for many following years. In this we can observe the slow birth of modern marketing. The Czech author Ignát Herrmann described the process thusly: “*Adverts of the day were a veritable infant in comparison to today. Look at the magazines of the day, on modest newspaper ads – every announcement speaks so soberly, sometimes almost timidly.*” [24] By contrast, in the first half of the 20th century, advertising started to use visual imagination of customers and tried to influence their senses and desires. Its purpose was no longer just to offer one's products. [15]

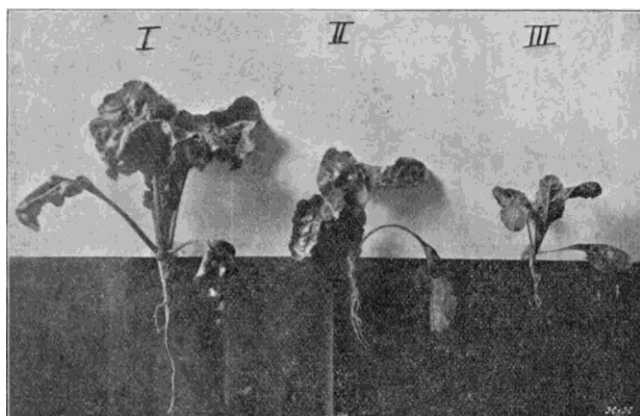


Fig. 6. Visual presentation of fertilization results. I – fertilized with 300 kg 18% phosphoric acid per 1 ha, II – fertilized with 150 kg 18% phosphoric acid per 1 ha, III – not fertilized. [23]

5. The introduction of cinema into advertisement in the interwar period

The first world war meant almost a complete stop to superphosphate manufacturing, primarily because the lack of phosphate rock that was previously almost exclusively sourced from overseas, particularly Pebble Phosphate from Florida or Gafsa/Morocco Phosphate from the French North Africa. In addition to the naval blockade, the war has brought with it the boom of armament industry. Most of the producers were able to survive the war more or less financially intact thanks to the manufacture of sulfuric acid for use in weapons production. [25] This meant that the market could be slowly but surely rebuild after 1918.

The relative economic positions of individual superphosphate manufacturers in Bohemian lands remained essentially unaltered up until 1938. The family firm A. Schram, headed by a third generation from 1927

onwards, was committed to maintaining the status quo, if because of nothing else than the better capital raising abilities of its largest publicly owned rivals. The cartel agreement was rebuilt in 1923 within the boundaries of the Czechoslovak republic. Officially a limited liability company, it bore the name Fosfacid between 1923–1933 and Fosfa between 1933–1938. [21]

All forms of media used to promote fertilization described above remained active throughout the interwar period. However, a new type of advertising came into being – cinema. The cartel Fosfacid/Fosfa, and through it its members like A. Schram, funded a plethora of different promotional motion pictures, either documentaries or animated films, and even movies played by actors. The latter are particularly interesting, as they included plots, at first glance quite ordinary, but in reality aimed at promoting fertilization.

Out of the dozens of movies produced a single one was selected to analyze, called *Jinak otcové – jinak děti*. The plot revolves around a small farmer Jeník, who is too poor to marry his loved one. He eventually goes on to study agronomy in Prague, where he learns firsthand about the advantages of fertilization. When he comes back home, he asserts his new ways against his reserved father, eventually reaping rich harvest that earns him recognition and allows him to marry. [26] All in all, an almost tedious plot. However, its primary significance can be illustrated in figure 7, where Jeník shows his harvest – an emotional pressure on the viewer urging him not to end up humbled by meagre harvest like Jeník's father. In the end, it is the dawn of an advert capable of working with the psychology of the customer, well established in modern marketing, but a breakthrough at the time.



Fig. 7. A scene from the movie *Jinak otcové – jinak děti*. A farmer shows his sugar beet harvest to his father. [27]

6. Conclusion

This study tried to map the types of promotion of artificial fertilizers, focusing on one example per each category. Particular emphasis was placed on the superphosphate market, as it was the dominant fertilizer throughout the

period, although the evolution of advertisement was similar for other types of fertilizer as well. It managed to track the development of different forms of fertilizer promotion, from educational brochures, newspaper adverts, farmer's almanacs, trade fairs and exhibitions to cinema. What is apparent is the evolution of advertising not only had an impact on the types of media used, but also on the form it took and most importantly on the ways in which it tried to convince customers.

Last but not least, the paper focused on the ways in which the business interest of manufacturers shaped promotion. The initial efforts to promote fertilization, conducted by altruistic enlighteners, was replaced as the primary mover by adverts funded by private subjects. At the onset of the industrial manufacturing in the last three decades of the 19th century, manufacturers tried to find ways to differentiate their products, either through their uniqueness or quality. The cartelization of the industry from the 1890's onward meant that the line between general promotion of fertilization and individual advertisement was blurred. The focus point for manufacturers was the general promotion of fertilization, aimed primarily at small and medium sized homesteads.

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