A Century of Science Publishing
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Chapter 3
The Growth and Decline of German Scientific Publishing 1850–1945

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Summary

The development of commercial scientific publishing companies in Germany commenced in the middle of the 19th century. University and Academy publishers never had a chance. Scientific society publishers emerged only in 1921/1923 during inflation, but had little impact. German publishers dominated in particular in Mathematics, Physics and Chemistry. In 1909, 45% of the articles covered by the *Chemical Abstracts* were from German publications. Until 1933 the German language was the "lingua franca" of Europe's scientific community. The export of German science publishers was significant, and in 1930 around 60% of Springer Verlag's turnover came from export. The international significance of German science can be seen from the large number of Nobel Prizes bestowed on it: 15 German scientists were recipients from 1901 to 1915, 16 from 1918 to 1932. After 1933 many highly qualified scientists fled the Nazis and found refuge in the Western world, constituting the start of the decline of German science. During World War II German science literature was reprinted on a large scale and sold worldwide. After the War the German language had definitively lost its world significance and German companies concentrated thereafter on production of textbooks and journals for the home market. In the sixties they also commenced publication of research literature in English.

From 1901 until the First World War one third of all Nobel Prizes in the fields of physics, chemistry and medicine were awarded to German scientists. This documents the immense significance of German science before the First World War. The names make this clear:

1901: Wilhelm Conrad Röntgen (Ph)	1909: Ferdinand Braun (Ph)
1901: Emil von Behring (Med)	1909: Wilhelm Ostwald (Ch)
1902: Emil Fischer (Ch)	1910: Otto Wallach (Ch)
1905: Philip Lenard (Ph)	1910: Albrecht Kossel (Med)
1905: Adolf von Baeyer (Ch)	1911: Wilhelm Wien (Ph)
1905: Robert Koch (Med)	1914: Max von Laue (Ph)
1907: Eduard Buchner (Ch)	1915: Richard Willstätter (Ch)
1908: Paul Ehrlich (Med)	

The German language had become the "lingua franca" of the science community. "Physicists and chemists in Britain and the USA could not do without reading German if they wanted to keep abreast of the developments in their own fields" [1]. In 1909, for instance, 45% of all (literature) citations referred to in *Chemical Abstracts* came from German journals [2].

German universities and science libraries provided a model for American and also for Japanese science. The German book trade, its organization and central services in Leipzig, were internationally the most exemplary. The British publisher Sir Stanley Unwin, who spent some time in the Leipzig book trade as a trainee, wrote in his memoirs in 1960: "The German book trade organization was in those days, and up to 1914, the finest and most complete that the world has ever known… The destruction of Leipzig in the Second World War, and its subsequent occupation by the Russians, almost entirely disrupted it" [3]. This complex and well organized book trade in Leipzig — where most of the science publishers were also located — together with the highly developed graphics industry, as well as local book-exporting science antiquarians like Gustav Fock, Otto Harrassowitz and Anton Hiersemann, were the reason for the export success of German science publishers.

In the predominantly regionalised German publishing industry a clear specialization in natural science and technical books became evident around 1850. Before that the mixed-list publisher, with output in literary work alongside theology, law and history, also randomly published work in science and technology. To illustrate the latter for the year 1850 I found a total of 34 titles, which had appeared from 24 different publishing houses. Friedrich Vieweg was represented with four titles, the classics publisher J.G. Cotta with three. The remaining 27 were divided among 22 further publishers.

Vieweg in Braunschweig was the first German publishing house to dedicate itself to the natural sciences (chemistry, mathematics, physics and technology). Liebig, Poggendorff and Wöhler were among their first authors. As early as 1826 in Berlin, August Hirschwald was the first who specialised in medicine.

Julius Springer, who had founded his publishing house in 1842 alongside a bookstore, turned in 1859 towards natural sciences, publishing a pharmaceutical journal and later a handbook of pharmacology [5]. After the founding of the German Empire in 1871, business, technology and science witnessed an unprecedented development. The sons and grandsons of Julius Springer expanded into technology, mathematics and medicine. The starting point of their activities was usually a journal: in 1889 Springer already published 20 science journals. In 1911 it was 41, in 1928 — when biology, physics and chemistry were added — 106 and in 1933 128 titles, among which were several abstracting journals. Springer also improved its market position by purchasing publishing houses with similar orientation — J.F. Bergmann in 1917, August Hirschwald in 1921, F.C.W. Vogel in 1931 — as well as by the acquisition of single items like *Beilsteins Handbook of Organic Chemistry* in 1916 and individual journals. Through Springer's determined effort after the First World War to establish its Mathematics Press, the respected publisher B.G. Teubner lost its leading position in this field. When inflation had abated in 1924, Springer enjoyed a dominant position not only on the German market. This is illustrated by the fact that in 1931, when their production reached 381 books and 125 journals, almost 60% of its turnover came from abroad.

In the second half of the 19th century a substantial number of other publishing houses were founded, which covered areas in natural sciences or began to specialize, often in medicine: Ferdinand Enke, founded in 1837, already produced more than half of his publications in medicine by 1874. F.C.W. Vogel, a company founded in 1730, also specialized in medicine from 1862. Newly founded were Urban & Schwarzenberg (1866), J.F. Bergmann (1878) and Gustav Fischer (natural science and medicine). An older company, Veit & Comp. strengthened its activities in natural science and medicine in 1876 and Georg Thieme became active in 1886. Johann Ambrosius Barth, after a change in ownership, specialized in natural sciences (*Annalen der Physik*) and expanded its program into medicine in 1894. S. Hirzel, a much older company, also covered medicine alongside humanities, after 1894. S. Karger (1890) was a newly founded medical publisher, as was Theodor Steinkopff (1898). The Akademische Verlagsgesellschaft, founded in 1906 by the antiquarian Leo Jolowicz, was a publisher active in all areas of natural sciences and in a relatively short time became the most important science publisher in Germany after Springer.

As well as journals, multi-volume handbooks, in which the current knowledge in a discipline was assembled, usually by a number of specialists, belonged to the program of these companies. From 1924 to 1933 Springer published 319 volumes of 19 handbook titles [6]. These handbooks included not only "established" knowl-

edge but also new research results, illustrated by the fact that, in their bibliography of the "most important contributions to the literature of medicine", Garrison/Morton included 8 Springer handbooks. There was fierce competition in this field: from 1924 until 1929 Springer published its 24-volume *Handbuch der Physik* while at the same time Akademische Verlagsgesellschaft started publishing a *Handbuch der Experimentalphysik* which was completed in 1937, and in 1925 Friedrich Vieweg reintroduced his *Lehrbuch der Physik* after Müller-Pouillet in 14 volumes, published since 1842.

For German science publishers the combination with a house-owned printer was rather the exception. Vieweg in Braunschweig, Rudolf Oldenbourg in Munich (Engineering, Technology) or B.G. Teubner in Leipzig (Engineering, Mathematics), for example, possessed their own technical companies. From 1911 Springer participated increasingly with the Würzburg printer H. Stürtz to have its strongly growing production less dependent on the market power of the Leipzig companies.

Some of the provisions of the Versailles Treaty were to prevent German science from regaining its pre-War status. German scientists were not admitted to a number of international congresses. The use of the German language was also forbidden, which was still the dominant scientific language for Dutch and Scandinavian scientists. Also these restrictions (lifted under the Locarno Pact of 1926) clearly hindered to a large degree the export of German science literature. Germany was essentially excluded from scientific communication for 12 years. Therefore, it is a sign of the world standard of German science that from 1918 to 1933 again one third of all Nobel prizes for physics, chemistry and medicine were awarded to German scientists:

1918: Max Planck (Ph)	1925: Richard Zsigmondi (Ch)
1918: Fritz Haber (Ch)	1927: Heinrich Wieland (Ch)
1919: Johannes Starck (Ph)	1928: Adolf Windaus (Ch)
1920: Walter Nernst (Ch)	1930: Hans Fischer (Ch)
1921: Albert Einstein (Ph)	1931: Robert Bosch (Ch)
1922: Otto Meyerhof (Med)	1931: Friedrich Bergius (Ch)
1925: James Franck (Ph)	1931: Otto Warburg (Med)
1925: Gustav Hertz (Ph)	1932: Werner Heisenberg (Ph)

After the end of WWI there was a significant gain in prestige for German exporters in that orders from enemy states' libraries had not been cancelled but stored up. To their surprise the libraries could close the gaps created through the War after a short time. The income in hard currency earnings was very welcome

during this period of German inflation.

During inflation the founding of university and society publishing houses was actively discussed, but with the strong position of the German science publishers, their chances were small. There were also legal obstacles for the founding of university presses. However, during these years scientific societies founded their own companies — for instance the Association of German Engineers (VDI) started the VDI-Verlag, the Association of German Chemists the Verlag Chemie and the Association of German Electrotechnical Engineers the VDE-Verlag, to mention but a few — but as of today only a few of them have survived. On the other hand, science associations started their own journals, but usually had these taken care of by commercial publishers.

Also in these times Springer succeeded not only in maintaining its international position, but also in expanding it. In this the scientific journals played a significant role. Especially the *Zentralblätter* (abstracting journals), of which 38 were founded by the company or taken over from other publishers, found a world-wide market. Medicine was central in Springer's aspirations to build a comprehensive information system on natural science publications. The first abstracting service was the *Zentralblatt für die gesamte innere Medizin* started in 1912. The *Zentralblatt für die gesamte Chirurgie und ihre Grenzgebiete* followed in 1913. (Both publications had the support of the corresponding societies.) In the mid-20's Springer annually published about 175,000 abstracts in their *Zentralblättern*, for which 3300 domestic and foreign journals were reviewed.

In particular Springer's relations with the Soviet Union intensified. In 1932 18.8% of all exports by Springer-Verlag went there, totaling 4,637,000 mark. In second place followed Japan with 16.3% and in third place the USA with 11.9% [7]. Russian mathematicians often visited Göttingen and its Mathematical Institute, among them Paul Alexandroff, Andrej Kolmogoroff and Alexander Khintchine, and they also published their works with Springer in order to secure the copyright.

In 1931 exports suffered much from the devaluation of the English pound, and all currencies depending on it, from 20.43 to 12.43 mark. German book exports to Japan were halved in the period up to 1935. The US dollar was also devalued by 40%, in April 1933.

After the National Socialists came to power, Jewish and Marxist scientists were expelled from universities and institutes. An exodus on an unprecedented scale ensued. Among the emigrants were: Hans von Baeyer, Max Born, Richard Courant, Albert Einstein, James Franck, Fritz Haber, Rudolf Höber, Rudolf Ladenburg, Lise Meitner, Richard von Mises, Otto Meyerhof, Carl Neuberg, Rudolf Nissen, Wolfgang Pauli, Peter Pringsheim, Georg Schlesinger, Erwin

Schrödinger, Eduard Teller, Hermann Weyl and Richard Willstätter, to mention only a few. A List of Displaced German Scholars, which was published in London in 1936, included 1652 names of scientists who had been forced to leave Germany, most of whom had not been able to find appropriate positions. Some science publishers also emigrated to the USA. For instance Walter Jolowicz (later Walter J. Johnson) from the Akademische Verlagsgesellschaft, who in 1941 founded Academic Press together with his brother-in-law Kurt Jacoby (and in 1945 also the Johnson Reprint Corp.); or Erik Proskauer, who became involved with the founding of Interscience Press (later part of John Wiley). S. Karger, who had founded his medical publishing house in Berlin in 1890, emigrated with his company to Basel (Switzerland).

From now on German scientists of Jewish origin published almost exclusively in the for them unfamiliar English language. In the Netherlands Martinus Nijhoff founded the journal *Physica* — which was open to scientists who until then had published in Springer's *Zeitschrift für Physik*. In the first issue, published in November 1933, of the eight contributions by Dutch physicists four were still published in German, and the others in English. In the mid-30's M.D. Frank and J.P. Klautz visisted German publishers to establish contacts with, for instance, the medical publisher Georg Thieme and the Akademischen Verlagsgesellschaft whose Jewish owner family Jolowicz, was under increasing pressure. The publishing houses Elsevier and North-Holland were interested in translation and co-productions, but before these efforts could have any great success the War started.

The race laws were also an immediate threat for the Springer publishing house. Both grandsons of the founders, Ferdinand (II) and Julius (II), were considered through the marriages of their fathers to be either fully Jewish, or less compromisingly, as mixed-race of second grade. In this context Julius (II) Springer had to leave the company in 1935. His stock was taken over by the trusted director Tönjes Lange. After a further sharpening of regulations, in 1942 Ferdinand (II) Springer also sold his shares to Lange. In the eyes of the National Socialists the company was now theoretically "judenfrei". In the circumstances the company name, which until then was "Verlag von Julius Springer", was also changed, into "Springer-Verlag". Both Springer cousins regained their rights after 1945, but they had not been able to prevent the father of Julius (II) Springer and two of their uncles becoming victims of the Holocaust.

The devaluation of the most important western currencies had a negative effect on the export of German books. German science publishers were naturally particularly hard hit. Therefore, on 9 September 1935, a general price cut of 25% for all exported books was introduced, the costs of which were essentially covered

by the state. Companies like Springer, which had had a comparatively high contribution from Jewish authors and editors, suffered even more damage. It was now also noticeable that foreign publishers began establishing journals, which started to compete with German journals. Because of this, Springer's export went down from 44.3% of turnover in the year 1931 [9] to 19% in 1941 and 12% in 1942. In this context it should be noted that exports — be it in strongly reduced quantities — to countries with which Germany was now at war were conducted through book traders in neutral foreign countries, for instance Switzerland or Sweden. The shortsightedness of the German authorities can be illustrated by the fact that in November 1939 they pointed to the importance of exports of science literature to neutral states which continued to be subsidized.

Instructed by the American "Alien Property Custodian" (APC) and on the basis of the "Trading with the Enemy Act", renewed on 21st April 1942, the Ann Arbor firm of J.W. Edwards in 1943 and 1944 alone reprinted 874 volumes from German science publishers, 390 of which were from Springer-Verlag and 89 from Akademische Verlagsgesellschaft.

Publisher	Titles	Volumes	Total list prices	%
Julius Springer	238	390	4357.35	48.6
Akademische Verlagsgesellschaft	48	89	949.85	10.6
Verlag Chemie	10	45	482.95	5.4
Walter de Gruyter	12	36	421.95	4.7
Georg Thieme	9	18	316.05	3.5
Dr. Theodor Steinkopff	48	47	287.75	3.2
Urban & Schwarzenberg	2	13	249.00	2.8
Ferdinand Enke	32	33	240.70	2.7
Johann Ambrosius Barth	29	31	204.90	2.3
Gebr. Borntraeger	14	15	198.85	2.2
S. Hirzel	23	25	180.05	2.0
Friedr. Vieweg & Sohn	10	10	108.35	1.2
44 others	114	122	968.90	10.8
Total	589	874	$8966.65	100.0

Publications in the field of chemistry figure most prominently. In addition there were countless reprints from journal volumes, as well as microfilms from individual publications for research projects. (One can assume on the basis of this that most American scientists were still able to read German.) The importance of this

reprinting program for American war research [10] can be seen from a letter of the then publisher of *Chemical Abstracts* to the Alien Property Custodian: "There is not the least doubt in my mind, that your republication program was one of the factors which made the atomic bomb possible" [11]. The gaps in German research literature in American libraries were clearly not only caused by the dollar devaluation of 1933. In the twenties, American libraries were already conducting a restrictive purchasing policy with respect to German primary journals because of their high prices. (The reasons for these were that the German journals were financed by private companies and not by societies, and there were no page charges required from authors.)

After the German surrender on 8 May 1945, and the division of the country into four occupation zones, book production was at first impossible and functioned later only in a very limited fashion. The acute lack of paper and the destruction of many production companies, especially in Leipzig, contributed to this. Export of stock which had survived the war was almost impossible at first, and later possible only under allied control. Universities and institutes were not yet fully operational, their libraries had suffered substantial war losses and their holdings were mostly stored elsewhere. And, on the other hand, German scientists had run up an information gap of at least a decade through the lack of foreign primary information. It was also a handicap that numerous important books continued to be reprinted in the USA and came on the world market at very low prices [12]. In this situation it is not surprising that German scientists were prepared to accept foreign job proposals. Numerous ambitious students soon followed them.

On the other hand, reprints of the journal volumes often had the advantage that American libraries in particular became interested in taking up subscriptions with the publishers or with their importers (journal agents). This, of course, in cases where the journals were of active interest to their users.

Only in 1949, after the foundation of the Bundesrepublik Deutschland and the Deutsche Demokratische Republik, could production be resumed in any significant way. In Leipzig, however, which had previously been the site of preference for science publishers, most companies became state enterprises and their owners had to re-establish themselves in the West. In both German states, moreover, priority was given to the re-publication of textbooks for students as well as practice books in, for instance, technology. Export of German science literature was also limited by the fact that the German language had largely lost its worldwide significance. Not only had English definitively become the "lingua franca" for scientists, but American, English and Dutch companies had taken the lead. Only since the sixties, when German publishers hesitantly commenced the publication of research

literature in the English language, has the situation slowly improved.

German publishers were forbidden to have direct contacts with foreign clients; thereby making export of books and journals impossible. However, in the Summer of 1947 Springer succeeded via the JEIA (Joint Export and Import Agency) by an indirect route in exporting stocks of books and journals which had survived the War. In this context Robert Maxwell was of help, at the time working as British press officer in Berlin. He founded the European Publicity and Advertising Company (EPAC) in London, and on 1 September, 1947, also in London, the firm Lange Maxwell & Springer was founded. Using these firms Springer realised exports to the value of 20.5 M DM between 1 February 1948 and 31 December 1958. Other German science publishers could also export along these routes.

Through a contact with Paul Rosbaud, who until the end of the War was a leading employee of Springer's, a joint venture company with the British publisher Butterworth was established, whereby Springer contributed publishing rights and Butterworth the venture capital. After two years however the collaboration was dissolved. The publication rights were acquired by Robert Maxwell for his own Pergamon Press [13].

From the 1950's German publishers could again export directly. They also started to publish books and journals in the English language, initially with some hesitation. When Springer opened its New York office in 1964 the company also gained direct access to American authors. Later offices in London, Tokyo and Paris followed, but these developments would require a separate treatment.

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[6] Sarkowski (2), l.c. p. 258.

[7] Sarkowski (2), l.c. p. 324.

[8] Sarkowski (2), l.c. p. 345 and p. 372 f.

[9] In addition, deliveries of German exporters amounted to an estimated 20% of turnover.

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[11] Richards, Scientific Information, p. 254.

[12] Sarkowski, Amerikanische Nachdrucke, p. 102. — Tabel: from Sarkowski, Springer-Verlag. p. 381. — "List prices" refers to Edwards' prices, which were usually only half of the German selling prices. *Belsteins Handbuch der Organische Chemie* in a complete reprint sold at 20% of the Springer price (Sarkowski, Springer-Verlag, p. 397, note 46).

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