

## Chapter 6

# The Dutch Publishing Scene: Elsevier and North-Holland

*Einar H. Fredriksson*  
IOS Press, Amsterdam, The Netherlands

International science publishing activities in the Netherlands in the first half of the twentieth century came about through contacts with German publishers, many from Leipzig, Germany's publishing centre, which contained important companies such as Akademische Verlagsgesellschaft (Aka), where young, aspiring Dutch publishers received their training. When the Nazis came to power, many German scientists, especially those of Jewish origin but also others, began to face difficulties in publishing their scientific work.

The first Dutch publisher to recognise this situation and its implications was J.P. Klautz, managing director of Elsevier Publishing Company in Amsterdam, who offered Jewish German scientists the chance to publish their work via his company, thereby becoming the major player in foreign language scientific publishing in Holland in the years before the Second World War broke out.

Elsevier was founded in 1881 in Rotterdam at the initiative of a local bookseller — using the name of the famous Elzevier dynasty of the seventeenth and eighteenth centuries. Before the Second World War Elsevier published general titles in Dutch, encyclopaedias and so on. In 1887 Elsevier moved to Amsterdam, the cultural and publishing centre of the Netherlands. One of its central works was the Winkler Prins encyclopaedia, and in 1883 Elsevier obtained the rights to illustrations from Brockhaus' famous series of encyclopaedias. (Ferdinand Arnold Brockhaus founded his company in 1805 in Amsterdam, but moved to Leipzig in 1817.)

J.P. Klautz (1904–1990) visited Brockhaus in 1929 for the preparation of the fifth edition of Winkler Prins. While he was there he saw on the office wall of the director, Hans Brockhaus, two photographs, one of a middle-aged woman and one of a rather unattractive man. Brockhaus explained that he kept these photographs on the wall for the benefit of young editors on his staff and added: “the lady is Mrs Johanna Schopenhauer, a novelist of moderate ability but whose books were best-

sellers. She was therefore held in high esteem by us. One day she showed us a short manuscript on philosophy by her somewhat eccentric son. We saw nothing in this manuscript, but wanted to please one of our best-selling authors by publishing her son's work. We published more and more of her son Arthur's work and today nobody remembers Johanna, but her son's works are in steady demand and contribute to Brockhaus' reputation" [3].

During the early 1930's, Elsevier had to cope with serious financial problems, which had arisen even before Klautz had been appointed director of the company in 1930. The Winkler Prins encyclopaedia was to carry the company financially, and it remained the policy of the owners that the non-fiction works should subsidise fiction publishing, but there were to be years, especially during the Second World War, when best-selling fiction titles would contribute significantly to the survival of the company. In 1936 Klautz wrote a memo for the Elsevier board on the opportunity of publishing scientific books in German by Jewish scientists facing difficulties in Germany. In 1937 he went to Germany, Austria and Switzerland to further investigate the market for scientific books in German. In Leipzig he visited Aka and G. Thieme, learning that over 50% of their science books (in German) were sold abroad. Dutch booksellers confirmed this estimate.

As to the situation in Germany, Klautz also learned that works by Jewish authors were allowed to be bought and that such titles could be imported into Germany, but it was uncertain whether Germans would be allowed to use foreign currency to pay for them. When Klautz reported his findings to the board, he was met with scepticism: Elsevier's main activity was in Dutch language books, including translations from foreign languages, and to start to publish works in German, primarily for export markets, might only yield results in the long term.

Klautz realised, however, that not only the right to publish works in German, but also the right to publish scientific works in English by German authors might be of interest. In Leipzig he also discussed, therefore, English language rights for some important titles. Elsevier therefore ventured into publishing a mix of German and English language book titles before the war. It should be borne in mind that Elsevier had no more than 10 employees when the war broke out, and that the total number of foreign language titles it published remained low up to 1940. Klautz also had a good relationship with the Rubber Foundation in Delft and his discussions there encouraged him in his determination to move into scientific publishing, especially in the field of chemistry, and started the preparation of two major works in English: Karrer's Handbook of Organic Chemistry and Richter's Organic Chemistry.

At the same time, Klautz took the daring initiative in 1939 to set up a US

branch of Elsevier. Since the mid-1920's an Amsterdam bookseller, Dekker & Nordemann, which specialised in the mail order selling of German science books and journals, had played an important role in facilitating his contacts with German publishers. In the late 1930's these contacts would prove to be important to Klautz. The first attempt by a Dutch company to establish a science publishing foothold in the United States was by the Nordemann Publishing Company, which was established in 1937. It anticipated collaboration with the German company Aka. When this failed, Klautz was contacted, and plans for an American Elsevier were worked on up to 1940.

M.D. Frank (1913–1995) established the second line of activity in science publishing in the Netherlands. After finishing secondary school and having worked at a book store in Amsterdam, he was sent by his father to learn the publishing trade in companies in Germany, France and the UK. In Leipzig, in 1934, he worked as a trainee at Aka. He got to know the key people at this company, including the Jolowicz family, their son-in-law K. Jacoby (1892–1968) who was co-founder together with Walter Jolowicz (who changed his surname to Johnson and later worked at Academic Press in New York), the physicist P. Rosbaud (1896–1963; a war hero who joined Butterworth in the UK after the war. He was the first scientific director of Pergamon Press, in 1951) and the chemistry consultant E. Proskauer (1903–1991; co-founder —with M. Dekker of Dekker & Nordemann— of Interscience in New York in 1940, and later vice-president of Wiley after they bought Interscience in 1961). In Leipzig Frank also worked in a bookstore and attended the Handelshochschule there. In Paris he trained with a bookstore and the publisher Gallimard, and briefly worked in London with a publishing house before returning to the Netherlands in 1936.

The Royal Netherlands Academy of Arts and Sciences had a vacancy in its newly established North-Holland Publishing Company and Frank was the successful applicant. The small company (its working capital was 500 Dutch guilders, but it did not need more as all its production costs were borne by the Academy) was founded on 13 August 1931. Naturally, the print runs of the titles published here were small but, in 1937, a law was passed which obliged all small self-employed businessmen to pass a test of proficiency in book-keeping, etc. before they would be allowed to set up shop. Frank was fortunate enough to become acquainted with the man who had the idea of preparing a set of simple textbooks for this purpose, which resulted in a series of study books which sold over a million copies until well after the war. Frank became deputy director of the company in 1939 and owner in 1963.

Before the war, Frank had established contacts with the research management

of the Philips Laboratories, and through the Academy he maintained contact with leading scientists, but they did not result in publications. (In 1937, Frank had drafted a long-term plan for the company, outlining its future specialisation in science publishing in both English and German.) Ironically, North-Holland would not have survived the war years had it not been for its textbooks aimed at small businessmen.

### Activities after the Second World War

Both Elsevier and North-Holland survived the war. Elsevier had an important list of Dutch publications, the encyclopaedia and general literature which sold extremely well. Even old stocks were sold out: in wartime, there was little else people could spend their money on. As far as North-Holland was concerned, the Academy publications and doctoral theses were not, of course, best-sellers, but the above mentioned textbooks did extremely well. However, starting a line of scientific publications after the war was no easy matter. Foreign currency, for example, was scarce, as were funds for foreign travel or supplies from abroad. (Klautz offered Churchill's literary agent in New York a guaranteed royalty of US\$ 100,000 for Churchill's war memoirs without the prior consent of the Dutch Central Bank and only got approval for this after he threatened that he would write to Churchill to explain that he had had to withdraw his offer as Holland refused to honour its liberator by having his memoirs published in Dutch.)

Klautz' experience with foreign language publications had led to several printing houses acquiring considerable skill in typesetting complicated scientific material. The Dutch graphics industry benefited from this for many years. Other factors contributing to the favourable business climate were low labour costs following the war and the availability of immigrant scientists willing to support publishers by advising how to establish the necessary networks for book and journal publishing.

While Elsevier's focus between 1945 and 1955 was mainly on chemistry and related technologies, North-Holland's was on physics and mathematics. Klautz hired the brilliant chief-editor, the chemist W. Gaade (earlier employed by the Rubber Foundation in Delft) in 1946 and later that year hired the bookseller H.P.M. Bergmans to manage the science publications within the diversifying company.

With the start of its primary research journal *Biochimica et Biophysica Acta* (*BBA*) in 1947, Elsevier took its first decisive step in the Dutch science publishing scene after the war. The journal grew steadily, and published two volumes in 1950, thereby doubling in price. *BBA* was to become the largest primary journal in the world (in 1979 44 volumes were published).

To give a historical perspective to Elsevier's first journal, *BBA*, [4]: "It all started when the fugitive Carl Oppenheimer was forbidden by the German occupation in 1941 to continue editing his journal *Enzymologia* and asked [the Dutch professor H.G.K.] Westenbrink to carry on in his place. This he did, together with his old friend [the Danish professor K.] Linderstroem-Lang. After the War, it proved impossible to come to terms with the publishers about the manner in which the journal ought to be continued in the eyes of the editors [Oppenheimer had died in the meantime]. So Lang and Westenbrink decided to found a new journal, foreseeing that there would soon be a great demand for journals."

The initiative to start a new journal in the early post-war period often came from scientists. That you did not need a society behind the launching of a new scientific journal was one of the first important realisations of young science publishers. Another important step was the launch of a programme of multilingual dictionaries. Elsevier published its first scientific catalogue in 1948. Entitled *Elsevier's Scientific Publications*, it contained introductions to each work including many reviews of the *Encyclopedia of Organic Chemistry*, and came to 56 pages, describing 23 published works and 21 works in preparation. Among the journals listed, apart from *BBA*, was *Analytica Chimica Acta*, another future Elsevier success story. North-Holland had a later start. Its 1949 catalogue lists two of its 'own' book titles — but in the 1950's it too developed an impressive list.

Repeated efforts by Elsevier and Klautz to establish a US subsidiary, first in 1939/40 and, later, in 1945/51 and 1951/61, illustrate the difficulties European companies had at the time in getting a foothold in the US market. The other road, taken by Frank for North-Holland, was to put all North American book distribution in the hands of an established US company (in his case, Wiley, through their acquired subsidiary Interscience). In 1946, as a newly appointed full director of North-Holland, Frank had visited the US and re-established contacts he had made in Leipzig 12 years earlier.

In 1946 Elsevier's science branch had six employees, and reached a turnover of NLG 1 million in 1953 (US\$ 263,000). North-Holland reached this turnover level in 1958. In 1949 North-Holland employed under four people, and ten by 1955. (Up to the merger in 1970, the privately owned North-Holland always had fewer employees than the science part of Elsevier.) Up until the 1960's, the scientific branch of Elsevier was a public company in its own right, probably so as not to risk the rest of the Elsevier activities in case it ran into financial difficulties.

Stimulated by the Belgian physicist L. Rosenfeld, Frank had his first big successes in physics, first with Rosenfeld's book *Nuclear Forces* in 1948, and a few years later with an international journal in the nuclear field. Frank had struggled long

and hard to establish this journal. His first attempts were in 1952, and he faced strong resistance from editors of existing national journals. To quote one of them [2]: “Das Leben der einzelnen Laender findet seinen Ausdruck in den einzelnen Zeitschriften, die jeweils ein charakteristisches Gepraege zeigen.” In 1955 two leading French phycisists declared that they were willing to join a European Board, and in January 1956 preparations began for the launch of North-Holland’s research journal *Nuclear Physics* under the editorship of L. Rosenfeld. This coincided with the hiring of W.H. Wimmers, a physicist with a background in the Dutch oil industry in Indonesia, as physics editor.

Publishing scientific journals proved to be a commercial, as well as a scientific, success. Before the Second World War, publishing scientific journals was the task of learned societies, while scientific books were published by commercial publishers. Research in the US was funded by government or industry. The journals then charged the author a ‘page charge’ which was paid from his research grant. This system did not exist in Europe and when after the war science publishing became global, European authors had great difficulties in getting their contributions published in leading American scientific journals as they could not afford the high page charges.

There was an explosion in scientific research at that time, and with this the number of papers to be published also rose, so it became clear that a solution had to be found. The solution was found by commercial publishers who started ‘open end’ journals, which were journals that were not limited to one volume per year with a fixed number of pages, but were published in as many volumes, each with a fixed number of pages, as were needed to satisfy the demand for space. No page charges were levied but this was more than compensated for in the subscription price per volume.

In the years following the successful launch of *Nuclear Physics*, Frank and Wimmers established the most prestigious journal and handbook programme in physics worldwide, along with that of the American Institute of Physics. Their early journal titles included *Nuclear Instruments and Methods* (1957), *Nuclear Materials* (1959) and *Physics Letters* (1962). Frank also began activities in the areas of Logic and Mathematics soon after the war. In 1949 North-Holland published the proceedings of the 10<sup>th</sup> International Congress of Philosophy (held in Amsterdam in 1948), and at the same time established the editorial board of the book series *Studies in Logic and the Foundations of Mathematics*. The World Congress for Mathematicians in 1954 was held in Amsterdam, the proceedings of which were also published by Frank. In econometrics, a series of books was commenced under the editorship of J. Tinbergen in 1953.

### The growth of science funding (“Big Science” years)

During the second half of the 1950's the growth in funding of the natural sciences worldwide, coupled with the growing number of institutes and scientists, as well as expanding librarians' budgets, began to have an impact on both publishers. The shock experienced in the US in 1957 when the Soviet Union launched its Sputnik clearly had an impact in Western Europe. This decade, however, was also a time when the majority of the war damage had been cleared away and towns were being rebuilt. Industrial and scientific activity had resumed in Europe, but many top scientists had moved to the US. Nationalistic feelings, as we noted earlier, still stood in the way of developing a broader European science publication activity. The number of new books and journals gradually began to grow, and both publishers branched out into new areas. They each experienced an almost 10-fold growth in turnover between the late 1950's and 1969, and their growth in profits was similarly impressive.

By the early 1960's the basic areas of science for these publishers — physics, chemistry and biochemistry — were the ones which had already seen a respectable growth. Elsevier had taken its first steps into biomedicine in the 1940's, and enjoyed success through the journal *Brain Research* in the late 1950's. Elsevier, more markedly than North-Holland, was moving away from publishing society-owned journals. Opportunities to start new journals were now offered by what was known as the 'twigging' effect in science, when sub-areas of major fields were receiving so much worldwide attention that the need arose for highly specialised journals in these subjects. As well as this, ventures into areas such as the earth sciences, pharmacology and other biomedical areas took place on a larger and, from 1960 onwards, planned scale.

Science is always in need of rapid information dissemination regarding new findings. The rather elaborate editorial and production process of traditional scientific journals which publish full length papers cannot achieve this. The American Institute of Physics solved this by starting a 'letters' journal containing brief and to-the-point communications — mainly from American authors — on very recent work. In order to offer the same facilities to European and other scientists, North-Holland also started a letters journal, called *Physics Letters*, in 1962, followed by *Chemical Physics Letters* in 1967. Editing and producing such journals had a profound impact on the way that journals were traditionally produced. Refereeing was done fast and on a yes/no basis, typically in a few weeks. Faxes and photocopiers were known technologies at the time but not generally available among scientists. In the late 1950's, carbon copies were still used in the refereeing process, all sent by post, and original copies saved for the production process. Figures, usually drawn

by the authors by hand, often had to be redrawn at the publisher's office. Proof-reading was also done at the publisher's office. As commented on below, innovations in typographic technology during the 1960's helped to pave the way for the letter journals' breakthrough. Frank and his colleagues took a strong interest in the modernisation of typesetting, at the same time demanding high typographic quality in the North-Holland publications. (A North-Holland mathematics book from the mid-1950's was among books used by Don Knuth in his design of a new letter font for TeX in the 1970's.)

In 1962 Frank invited E. van Tongeren from *Excerpta Medica* (see Ch. 16) to develop a publishing programme in the hitherto underdeveloped field of bio-science. The major venture in medicine at that time was the *Handbook of Clinical Neurology* (based on the pre-war German *Handbuch der Neurologie*). Van Tongeren initiated several periodicals, such as the *European Journal of Pharmacology* (in 1967) and the letters journal in biochemistry, *FEBS Letters* (in 1968), the editors of which were appointed by the board of the European Federation of Biochemical Societies.

In Elsevier, junior editors in the areas of earth and biomedical sciences as well as technology had been hired around 1960. The company at this time employed around 40 persons. Of them, the geologist A.A. Manten was to be the first who systematically developed a new area in a planned fashion, but the chemistry programme, under W. Gaade, continued to be the core activity of the company. The Elsevier list had 14 chemistry and 13 earth science journals by 1969, most of which were a result of the expansion activities after 1960. North-Holland began to expand its editorial staff only in the second half of the decade. W.H. Wimmers was responsible for the expansion of the physics list in the 1960's, which included, apart from the above mentioned journals, *Crystal Growth*, *Optics Communications* and *Surface Science*.

The growth of science and technology research and the increasing capabilities of publishers led to a significant increase in the number of publications. The usual production process was hot-metal typesetting and impact printing. Offset printing had been making an inroad into general publishing in the 1950's, and in the early 1960's it was experimented with for producing the fast turnaround 'letters' journals. Typesetting using mechanical typewriters, each carrying different letter-types, had been used at *Excerpta Medica* by Van Tongeren since 1953 and at North-Holland since 1962. Shortly afterwards, electrical typewriters were introduced, followed in the early 1970's by IBM Composer machines with high quality fonts. This development led to the formation of sizable in-house typesetting activities within Elsevier and North-Holland before 1970, and developed, in the case of North-Holland, into a separate typesetting company in 1969. Initially, considerable savings were



achieved in typesetting costs, as labour costs were relatively low in the Netherlands up to the late 1970's. The traditional typesetting/printing companies that had specialised in scientific works since after the war were, with a few exceptions, disappearing by that time.

The growth of international science publishing since the war had been market-driven. The need to obtain sufficient and timely information among scientists and librarians was so strong that publishers' really did not need to market their publications. However, Elsevier traditionally had a more developed sales/promotion activity, and an international sales network, including its own subsidiaries in the UK and the US. As part of a corporate structure, Elsevier had a more rigid organisational framework than North-Holland. From 1955, the Elsevier holding company had been managed by R.E.M. van den Brink, an economist who played a key role in the formation of the potential world-leading publisher and the group's development up to his departure in 1987. The merger between Elsevier and North-Holland took place on 1 January 1970.

### Mergers

The Elsevier/North-Holland merger was no more than a year old when in 1971 the Elsevier holding acquired the medical abstracting service and databank *Excerpta Medica*. The resulting publishing group, which changed names on occasion through its 30-year history, would from now on be called simply "Elsevier", while the names of companies it acquired would be kept as imprints. In 1970, the total group turnover was around US\$ 15 million, which was large in comparison with most of its competitors at the time, but small compared with the group's turnover of 2000, which was around US\$ 1 billion. Was this growth planned or expected? Of the pioneers, only M.D. Frank was still at Elsevier, and he retired in 1972 at the age of 58. J.P. Klautz had been forced into retirement in 1955 because of his too ambitious plans for activities in the US, W. Gaade died unexpectedly in 1970 and H.P.M. Bergmans had retired in 1971.

Frank had been amazed at and even worried by Elsevier's growth and rapid development during the 1960's and felt pessimistic about the possibility of maintaining this growth, especially when taking into account the tendency of scientific libraries to form networks and the resulting decrease of subscriptions to the valuable, but at the same time expensive, core journals. However, this growth was indeed maintained, and this is proven by Elsevier's results. Clearly, for the Elsevier business as a whole, the science group was only one of several activity areas, albeit by far its most profitable. The uncertainty of long-term growth projections may have contributed to management's tendency in the 1970's to see the science group

as a 'cash cow', a company in a mature state of exploitation.

Elsevier's strong growth can be illustrated by the following results: when totalling the subscription price of each journal published by the Elsevier/North-Holland group in 1973, the subscription price was 37,500 guilders (US\$ 13,500), but this had increased in 1977 to 79,900 guilders (US\$ 32,500). Even more spectacular was the group's contribution to Elsevier revenues. The science group's share in Elsevier's total turnover was 25% in 1976, but its contribution to the group's profits had grown to 67.5%, so that the group was able to finance its activities in other fields from the science group. In 1976 the group completed its first long-term plan, for the period until 1980. This was a cautious plan, which nevertheless predicted a doubling of its turnover. Efforts to consolidate and increase traditional publishing programmes in the natural sciences turned out to be successful, and this was followed by the establishment of a separate biomedical operating company.

At the same time, efforts were made to begin or develop lists in the areas of agri-sciences, engineering, mathematics, computer science and economics. A social science programme was sold to the emerging Kluwer group in the 1970's, while a small but successful psychology/cognitive science and linguistics programme was published under the North-Holland imprint. It can be concluded that Elsevier's developments from 1970 to 1990 showed much continuity: the growth was autonomous, and no significant mergers were carried out before that with Pergamon Press in 1991. Periodic reorganisations were mainly cosmetic in nature. Pergamon (see Ch. 7) came from a similar publishing tradition as its Dutch partners, and this was a merger of equals in many respects.

The basic organisational units of Elsevier became (first in the form of operating companies and later as divisions), (i) Biomedical, (ii) Chemistry, (iii) Physics and (iv) Information Technology (IT) & Business, in which (iii) and (iv) were kept as a single operating company until 1982 under the name North-Holland. The largest and (in the period up to 1990) most profitable divisions were those based on the basic science programmes of a generation earlier: (ii) and (iii) and the biochemistry-based kernel of (i). Within these units were profit centres, e.g. geosciences and agriculture were grouped under (ii), and mathematics and economics under (iv). In each profit centre were long-term commitments with external scientists as editors of journals and book series. Specialist in-house staff kept in contact with these editors, often for very long time spans, in order that continuity of association could be maintained. At the time of the merger, promotion/marketing activities were reorganised into a centralised sales department, but soon decentralised and reattached to their respective publishing units. Publishing activities in subsidiaries in the science areas were mostly derived from the editorial groups in

Amsterdam. In New York during this period, textbooks and society journals were added for the US market.

Each unit contributed to company growth in the period 1971–1990. The group turnover grew roughly 10-fold, from around NLG 50 million to 550 million (US\$ 15 million to US\$ 300 million). The profit margin required by Elsevier was set at 20% after tax, which few sectors of industry could reasonably sustain. To achieve this, new activities were discouraged, and experimentation in new technologies or media kept small (see the following section.)

Elsevier's pre-eminence among commercial science publishers was maintained in the traditional basic science areas, and established in the post-1970 period in a number of new areas. The time involved in establishing a presence and later a full publishing programme in a new area of science — including technology and medicine — could be several years. Often this depended on the expanding funding for research, education and libraries in an emerging discipline. For example, the area of logic/computer science was first encountered in the late 1940's by North-Holland; there was a surge of urgency in the subject after the first World Congress of Information Processing in Paris 1959, followed by the first journals in the subject around 1970, and a large book and journal programme in the 1980's. The turnover of sector (iv) above in the period 1970–1990 grew from NLG 1 million to 100 million (US\$ 275,000 to US\$ 54 million).

In the Netherlands there were also other science publishers after the war. In the 1960's a mainly physics programme was established by D. Reidel Publishing Company in Dordrecht. Other players included Dr. W. Junk, P. Noordhoff and M. Nijhoff, who were all to become part of a group that began in the 1970's and which resulted in the establishment of Kluwer Academic Publishers. Publishers like Reidel, trained by Frank — who in turn had had his training at Aka — were termed by Frank 'grandchildren of Aka.' In addition, in the 1980's, former Elsevier and North-Holland staff members formed their own companies, such as IOS Press.

On two occasions attempts were made to merge Elsevier Science and the Kluwer Academic groups. The first, in 1987, resulted in a merger by the latter with another Dutch group, Wolters/Noordhoff, to become the Wolters/Kluwer group. The second, in 1998, was meant to be a fusion between Reed/Elsevier and Wolters/Kluwer, but failed amid suggestions that this merger would form a cartel.

### **Expansion and innovation**

With expansion continuing in the 1970's, new staff was being added to further develop existing project lines, and search for new opportunities where appropriate. Over 200 new journals were established by the group in the 1970's, followed

by a similar number in the 1980's. Of the older titles, many became strategic ('core') journals in their (sub)fields. Journals begun before 1970 were usually well established and continued to grow in size each year. The numbers of subscribers per journal were comparatively high before 1970, and the earlier journals had in general peaked as to number of subscriptions shortly after that year. Growth in volume and subscription prices tended to be faster than the relative decline in income from lost subscriptions. This had the result that the turnover of most journals begun before 1970 grew until 1990, sometimes later.

In the early 1970's new journals were welcomed by the market, and it was not unusual for a new journal to have 400 or more library subscriptions after the first year of publication. By the early 1980's — only 10 years later — new journal titles were considerably less welcome. To reach 200 institutional subscriptions after the first year was considered satisfactory. The total number of Elsevier journals by 2000, including post-1990 mergers, exceeded 1200.

Book publishing also expanded (in the number of new titles per year) in the 1970's, especially with the appearance of 'camera-ready' manuscripts, which were produced through offset printing. With increasing specialisation and a larger worldwide supply of new book titles, the number of copies sold per title also started to decline around 1970. Elsevier published under 100 new books in 1970, more than 500 in 1980, and 700 in 1985. In the early 1990's this number was reduced, only to increase again after 1995.

Expanding volume and lower sales inspired continuous efforts to reduce costs. As we have seen, typesetting of journals through the use of typewriters was introduced in the 1960's.

For books, by the 1970's, the author-typed manuscript was becoming a serious alternative to traditional typesetting. Main innovative activities focused on typesetting, and the gradual introduction of computers in this process. In-house typesetting had gradually increased in popularity since the 1960's, as mentioned earlier. By 1980, computer typesetting had appeared and three systems were mainly used in Elsevier. The choice of two proprietary systems instead of TeX (which was favoured by mathematicians and physicists) dominated the in-house typesetting scene for quite some time. Developments in in-house typesetting systems, one MS-DOS-based and originally used for biomedical works, led to internal standards for manuscript handling which were in place by the 1990's. Internal typesetting was on the whole abandoned after 1995, at which point most typesetting work had been transferred out of Europe (to India and the Philippines, among other countries) in order to save money. The initial price advantage of in-house typesetting, obtained through the use of low cost typewriters and with comparatively low labour costs in

the 1960's, had been lost by the mid-1980's.

Essential internal stimulation for computerising internal typesetting activities came from *Excerpta Medica*, which had been modernising its handling of journal abstracts. This influence also extended to the notion that full articles could be viewed as database records in electronic journals. This remained purely a theoretical concept until the technology became readily available to authors in the 1990's. (see also Ch. 16.)

### *Trends journals*

Among innovations in the 1970's, we should mention the move towards more general (scientific magazine) journals. Elsevier already published variations on the standard primary journal, such as letters or review journals (in addition to abstracting journals, which were mainly in the field of medicine.) The first in the 'trends' series of journals was *Trends in Biochemical Sciences (TiBS)*. The past President of the journal's sponsor, IUBMB (the International Union of Biochemistry and Molecular Biology), Professor W.J. Whelan, said of the journal's beginning:

*TiBS* began after I became the General Secretary of the International Union of Biochemistry [IUB, the precursor of IUBMB], in 1973... Together with the IUB Treasurer, Bill Slater, we sought out Bart van Tongeren of Elsevier/North-Holland. During an informal exchange of ideas, I suggested a mini-review journal. Bart and his colleagues had been considering a news magazine. We combined the two together, with the reviews as the meat within the sandwich of news. Thus was *TiBS* born. The sales strategy was to price the personal copy low enough to make it easily affordable. The result was and has been an outstanding success. What may not be generally known is that there was strong opposition within Elsevier/North-Holland to publishing *TiBS*. Indeed, my Elsevier counterpart told me that but for the enthusiasm of the IUB for *TiBS*, it might never have appeared. On my side, the first appearance of *TiBS* brought me an attack from a biochemistry department head who said I had sold myself for the price of a free dinner. Such is the welcome extended to innovations.

With the purchases of the British journal *The Lancet* and the portal *BioMedNet* in the 1990's, Elsevier's trends journals are now published out of an office in London.

### *Adonis*

New product discussion in the second half of the 1970's focused mainly on document delivery and the potential danger of people photocopying articles from the British Library and other organisations at the time. It was decided to form a

consortium of publishers who would store and deliver single articles to paying customers. On the way towards implementing this, which took a decade, many new information technologies were looked at. Archives using database technology, rather than paper archives, were put in place. The consortium, which included Springer, initially managed Adonis. In 1997 it was absorbed back into the Elsevier structure and is currently under the Science Direct umbrella.

There were also attempts to link the EMBASE secondary service (see Ch. 16) with part of the primary journal package of the biomedical division. An experimental ‘journals-online’ database, including 25,000 pages from *BBA* and *Brain Research* proved to be before its time. Expensive and inadequate communication lines made the service impractical.

### *Compact journals*

At North-Holland the first steps towards establishing the journal *Computer Networks* (see Ch. 17) were taken in 1974. Internal company experiences with databases and automating *Excerpta Medica*, combined with computer conferencing, led to the concept of ‘compact journals’ where news, announcements of forthcoming articles or books, conference items, and readers’ letters, formed the main items. Database and navigation concepts were tested, and dedicated software was developed. The *IFIP Compact Journal* (co-sponsored by IFIP (the International Federation of Information Processing), Dutch and German government grants, and participating institutes and companies) was developed between 1977 and 1980, and had its first public demonstration at the IFIP and MEDINFO congresses in Tokyo in 1980. The costs of the leased phone lines for the week’s demonstration exceeded US\$ 10,000. With high phone line costs and no personal computers at that time, the project was disbanded in 1983 — some 15 years before it would have become viable. One of its files, a database of conference announcements, survived until recently in the form of EventLine.

Other innovative ideas, including preprint abstracts and synopsis publishing, were trialled between 1970 and 1990, but the book and journal business remained intact. It would only be in the 1990’s that successful steps could be taken towards electronic publishing.

### **Growth through acquisitions**

As Elsevier moved into the 1990’s, it had 600 journals, an impressive profit margin, and after the Kluwer takeover debacle in 1987 it still owned one-third of the stock of its competitor, the Wolters-Kluwer group. Attempts to form a strategic liaison with the British Pearson group had led no further than a 7% share in

their stock. Taking these factors into account, Elsevier had an extremely strong financial position, should the opportunity for another company acquisition or merger present itself.

The first opportunity of the decade was when Elsevier was offered to take over the Maxwell Multimedia Group, which at that time consisted of five companies. For various reasons this offer was turned down, and six years later Elsevier paid much more to buy only one of those companies, Molecular Design. But Elsevier chairman Pierre Vinken had realised the precarious position of the Maxwell empire, and Elsevier instead bid for Pergamon Press. In record speed, during the first quarter of 1991, Elsevier purchased Pergamon Press — and the investments they had made in the other groups in the 1980's proved very useful.

In 1992 Elsevier found a UK partner, Reed, which was a conglomeration of companies including a small science activity (Butterworths) and a large US branch, which included Bowker. The new partnership of Reed-Elsevier went on an acquisitions tour to expand into areas outside science publishing. The merger with Pergamon Press meant that the Elsevier science group now had around 1000 journal titles and an expanded book programme. There were few other expansion moves before the year 2000, but one of these included a French journal publisher, Gauthier-Villars, which signalled an end to commercial science journal publishing in France, and JAI Press (in 1998) from Jolowicz' grandson Herbert Johnson. A second attempt to merge with Kluwer, and discussions to that end with the Wolters-Kluwer group, were aborted in the Spring of 1998.

After the half-hearted and premature attempts to develop an electronic alternative to paper-based primary publishing in the 1980's, a series of production reorganisations took place before 1990. These continued throughout the following decade, along with a number of cost-saving measures. More or less simultaneously with these reorganisations, Elsevier began to accept 'compuscripts', machine-readable manuscripts, from authors, in order to convert them to SGML (see Ch. 17). The project in which this took place was called Computer-Aided Production (CAP). The progress of the CAP project was hindered by the above-mentioned reorganisations. There were also technical difficulties, especially in the processing of material with many mathematical formulae or complicated tables. One of the original goals of the CAP project was to convert the text of all articles to SGML as early as possible in the production process, and thus produce professionally typeset pages from the SGML files. This goal was never fully achieved, for various reasons. On the whole, however, the CAP project did result in large quantities of journal material in digital form, which was stored in an internal 'documents warehouse'.

All this was necessary preparation for a move Elsevier made in 1986. In this

year Elsevier announced a new service, Science Direct, through which all their journals, and possibly also those of their competitors, would be made available in electronic form. This service depended very much on Elsevier's work on computer-aided production methods and the internal warehousing of documents. Science Direct commenced in 1998 and by 2001 included around 1200 journals.

Elsevier customers can also choose to use Science Direct On Site: special software developed for Elsevier, which can be run on a customer's website and which is fed with material coming from Elsevier. It also operates portals and electronic journals outside Science Direct, such as *BioMedNet* and *ChemWeb* (purchased in 1998), *The Lancet* and several electronic products developed in the Amsterdam office.

Issues concerned with user interface led in 2000 to the purchase of the library software company Endeavour Information Systems, which had successfully installed its Voyager library system in a large number of academic and research libraries worldwide. The decade ended with the announcement in October 2000 that Reed-Elsevier had bought the Harcourt group from the US media conglomerate Harcourt General. The Harcourt group includes Academic Press and the leading US medical publisher, Saunders. This takeover would (if it is approved by anti-trust authorities) make the extended Elsevier group, with 1600 journals and a large book programme, the clear leader in its field, with an estimated 25% of the world market for advanced scientific/medical information.

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