

View of two of the machinery halls at the exhibition.

A World's Fair of Books

The International Exposition of Book Trade and the Graphic Arts at Leipzig, Germany

By Dr. Alfred Gradenwitz

ON the very ground where, one hundred years ago, was waged the "nations' battle," a peaceful competition of peoples is taking place this year, for the benefit of civilization and the profit of mankind. The International Exposition of Book Trade and the Graphic Arts, at Leipzig, Germany, may fitly be called a sym-

posium on human education; it unfolds before our eyes the history of culture, man's own history, giving an insight into the intellectual evolution of nations, the rise from darkness, superstition, and ignorance to light and joy, education, knowledge, and understanding.

No other city in the world could afford a more fitting and dignified frame for a world-fair such as this, than the ancient metropolis of the world's book trade, which in addition to its old traditions, boasts of a goodly number of important publishing firms and professional

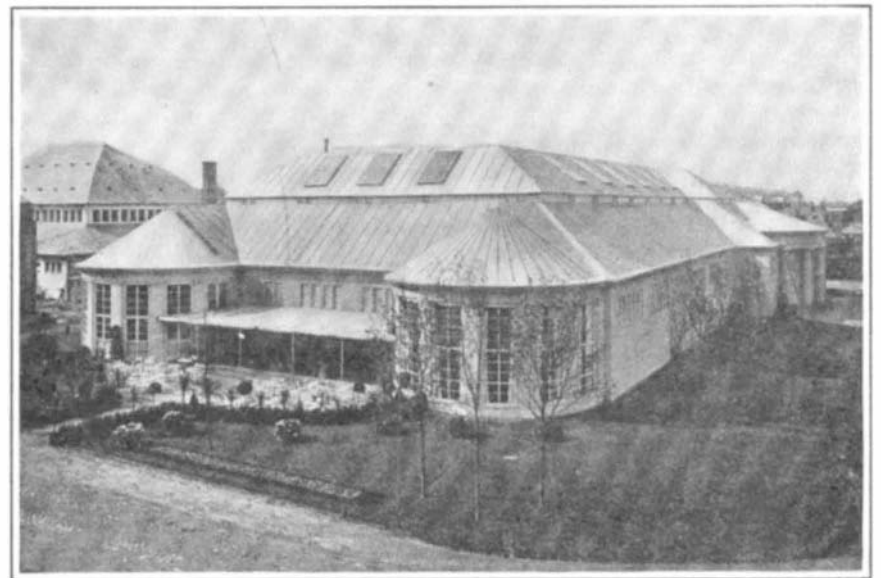
tists, and artists willingly lent their assistance. The same appreciation was shown abroad, and no civilized country having achieved anything of importance in the field of book trade and the graphic arts was content to lag behind in the race.

The "World's Fair of Books" coincides with the 150 years' jubilee of the Royal Academy of Graphic Arts and Book Trade of Leipzig, which year after year sends out so many artistically trained members of the profession.

avenue, which is one of the main thoroughfares, traversing the whole length of the exposition, there is situated the extensive group of buildings constituting the German Main Hall, the heart, as it were, of the whole show. This hall covers an area of five acres, and comprises practically all branches of the printing and publishing industry.

The spirit of the underlying idea finds a dignified expression in the architectural arrangement of the exposition. On entering by the main gate, leading to "October 18th Street," one obtains a splendid view of the exhibition grounds, while in the background the Leipzig Battle Monument looms up. To the right of this

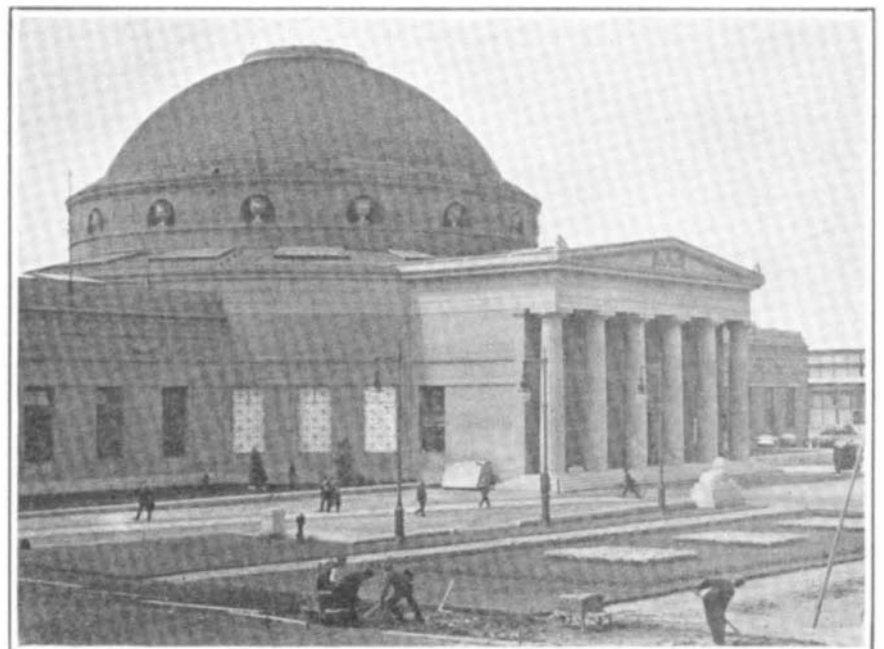
The right-hand wing of the imposing building is given up entirely to the extensive field of German book trade and kindred industries, inclusive of the arts of repro-



A variety of architectural styles are represented on the exhibition grounds.



The merchants' building.



The hall of civilization.



One of the exhibition pavilions.



The hall of paper industry.

duction, photography, and cinematography. We are shown, among other things, how the artist designs an alphabet, how the engraver copies it, and how the type is cast ready for the compositor. We may watch how the type and blocks are combined in the typesetting machines, to form the most varied typographic products; how the compositor's work is corrected and made ready for printing. The various modern printing processes in use are likewise exhibited.

In the central part of the building are housed, among other groups, those of bibliography, library, science, bibliophily, etc. The most beautiful products of German book-binding and the exhibits of the Imperial Printing Offices and German Patent Office are found there, in addition to the large Book Sales Exposition.

The whole left-hand wing and part of the rear of the building are taken up by a pantheon of the German publishing trade, where an adequate idea of the imposing number of books and musical editions brought out every year can be gained. The hall set apart for illustrated magazines is likewise found in this wing, and adjoining it is the Musical Editions' Sales Department, comprising a large hall for musical and literary recital.

On leaving the German Main Hall from the rear, we reach a square known as Gutenberg Square, on which are situated three huge engine halls, covering a total of 18,000 square meters. In the first engine hall a paper-making plant is shown in operation. In the second engine hall, printing, typesetting, and casting machines are similarly exhibited. The third engine hall shows, among other things, a large up-to-date book-binding shop, comprising about fifty auxiliary machines, in full operation. Foreign firms are largely represented in the first and second engine halls.

The intellectual center of the show is formed by the Hall of Civilization, on the left of Gutenberg Square, where the gradual development of the book trade and graphic arts with their forerunners in the various stages of civilization with all the peoples of history is shown in a comprehensive exhibit.

In three large annexes to the Hall of Civilization are housed two of the most important groups of the exposition, namely, the Departments of Graphic and Photographic Arts, respectively. The former comprises masterpieces of the contemporary graphic art of practically all civilized countries, and gives an excellent idea of what is being achieved at the present day in the field of etching, engraving on copper, artistic wood

engraving, modern lithography, etc. Applied graphics, as exhibited in book-binding, artistic lettering, etc., is likewise represented, much room being devoted to book illustration. Photography as a free art is comprehensively represented in a huge hall, mainly as professional photography, though the amateur's art also finds a place. Nor are the very latest manifestations of the art, such as balloon and aeroplane photography, omitted. The scientific evolution of photographic art and its resources, as well as the latest advances, including the whole of cinematography and the manifold scientific uses of ordinary and moving-picture photography, are likewise on show.

"Nations' Street," a long avenue on which are situated the palaces of the nations participating on an especially large scale, leads from the Hall of Civilization to the second entrance to the exposition. On the right are seen the Italian and French buildings, two white pavilions designed in renaissance style. Between these, somewhat to the back, there is the huge hall housing a special international show, "The Business Man," where among other things, the evolution of commercial education, from its most primitive beginnings to its present perfection and variety, is illustrated. On the opposite side of the street is the Esperanto pavilion, a building devoted to "German Civilization Abroad," "German Colonies," etc., and finally, a pavilion where Japanese wood-cutters are demonstrating their art. On the right-hand side of this street is the Saxon State Building, where the Royal Academy of Graphic Arts and Book Trade, as well as the Bourse Association of German Booksellers, have some most excellent material on show; farther, the Austrian State Building, and between the two, in the background, a special exposition, "Picturesque Germany," where the choicest spots of the country are shown in photography. On the opposite side, beside the Wine Restaurant, there is the British Building, a structure designed in the Tudor style, and surmounted by a tin-crowned tower, an especially striking example of national architecture, and adjoining it, the Russian Building, the exact replica of the famous Moscow Kremlin.

Opposite this Palace of Nations, there is the School Pavilion, comprising a hall for demonstrations and exhibits relating to the Boy and Girl Scout movement. In this pavilion is shown what a valuable help the book trade and graphic arts, in conjunction with the highly developed industry of educational appliances,

are lending to the schools. An extensive group of buildings a little farther to the right then catches our eye. This is known as the "Industrial Town," and affords a fascinating picture of life and activity. The old Haynsburg Paper Mill here turns its wheels as 200 years ago, manufacturing hand-made paper in accordance with the methods of the time. A historical hand-printing plant is also installed where the type is cast and composed by hand. Side by side with these old, primitive shops are exhibited examples of the most advanced modern art, including a modern paper machine, which has a capacity equal to that of 500 hand-workers. In large halls housing the exhibits of the Association of German Paper Makers, visitors are shown the raw materials employed in paper manufacture, how these are worked into the various kinds of paper, and how manifold objects are manufactured from this material. This group of buildings terminates at the Newspaper Printing Office, where two huge rotary machines serve to demonstrate modern newspaper printing, while a third one illustrates in a most striking manner the most recent engraving process, rotogravure. The genesis of a newspaper is illustrated from the reporter's manuscript to the printed and folded copies. The historical development of journalism is also set forth, from the most primitive beginnings—fire signals and mounted messengers—up to the splendid achievements of modern engineering, wireless telegraphy, and telephotography.

On the left we reach a spacious pavilion housing a special show, "Woman in the Book Trade and Graphic Arts," where a comprehensive idea can be gained of the work done by women in all branches of printing, literature, music, the decorative art, library management, etc. Opposite this rises the hall where the Exposition of Trade Journalism and the special show of Stenography are installed. The latter demonstrates the whole evolution of shorthand from antiquity to the present day, with its manifold systems, and affords a practically complete picture of the highly developed shorthand industry.

Close to the other side of the main entrance, there are three auditoriums, holding 300, 600, and 1,200 people, respectively, and the moving-picture theater of the exposition. This part of the exposition grounds also comprises a number of cafés, restaurants, and places of amusement. Beyond the bridge there is a miniature German college town or *quartier latin*, illustrating the typical life of German undergraduates.

Light Alloys for Automobile Parts

Nor many years ago one of the troubles of the manager of a big engineering works was the importunity of the purveyors of perfect lubricants. Though we still have these with us, the oil merchant has a serious rival in the man who claims to have invented a perfect aluminium alloy. Of these alloys there are some hundreds known by name, if not as a result of actual experience, and this number is being added to almost in inverse ratio as the cost of aluminium, owing to improved electrical methods, is reduced. Practically speaking, very few of the light aluminium alloys that have been produced with a view to revolutionizing engineering constructional methods have been a success from the industrial standpoint. The reason for this, as has been pointed out by Law, is to be found in the fact that aluminium unites with most of the common metals to form definite chemical compounds which crystallize out in a matrix of practically pure aluminium, and it is known that alloys with conglomerate structures of this description are only useful in special cases. Such compounds are formed with iron and copper, nickel, antimony, manganese, and tin.

ALLOY FOR MOTORCAR PARTS.

Zinc, on the other hand, forms what are known as

solid solutions with aluminium, and the alloys of these metals, either alone, or more often with small additions of other metals, such as copper or magnesium, are practically the only ones of industrial importance. Alloys of aluminium and zinc have been very fully studied by various investigators, and are largely used in the motor industry for castings of crank-cases, gear-boxes, etc., the proportion of aluminium being, approximately, 88 per cent, that of zinc 10 per cent, the balance being made up of copper. Such an alloy has a tensile strength of from eight to ten tons per square inch. Though this particular alloy is stable, many aluminium-zinc alloys are liable to failure through aging, a process which can be prevented, however, by the addition of certain elements, which in many cases are claimed to give alloys very remarkable properties. What these elements are is not always perfectly clear, for though inventors often take the trouble to patent certain mixtures, and thereby tell the world what metals are supposed to enter into their alloys, it does not necessarily follow that all these metals are invariably used, or if used will be found to be present in the alloys on analysis.

Among the metals that are frequently added in small quantities to aluminium to produce special alloys may

be mentioned nickel, manganese, silicon, iron, sodium, potassium, chromium, tungsten, titanium, mercury, and magnesium. The latter element was alloyed with aluminium the first time nearly forty years ago, and forms the basis of the well-known alloy, magnalium, which, unlike unsuccessful early magnesium alloys that contained as much as 10 per cent of the metal magnesium, now contains only something in the order of 1.6 per cent of magnesium, the resulting alloy being a much superior product, particularly when alloyed with about 1 per cent each of copper and nickel.

AN ALUMINIUM ENGINE.

In fact, it has been suggested in a paper read before the American Society of Automobile Engineers that the use of magnalium for the cylinders and pistons of internal combustion engines is a practical possibility, and here we may remark that we know of the existence in London of a small working internal combustion engine that is made entirely of alloy aluminium with the exception of the crankshaft and the flywheel. Besides the aluminium-manganese and aluminium-zinc alloys, there are many other binary alloys, including the aluminium-copper series and the aluminium-nickel series, but at the present time the tendency is undoubtedly toward the to be evolved more complex alloys