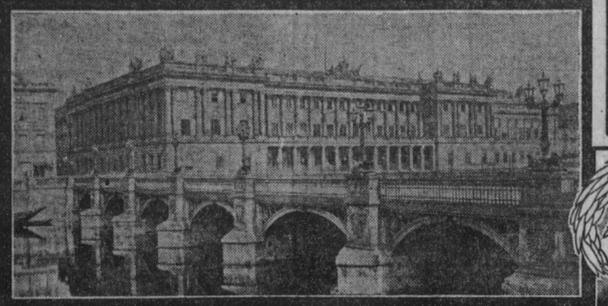


WITH PEN AND CAMERA.

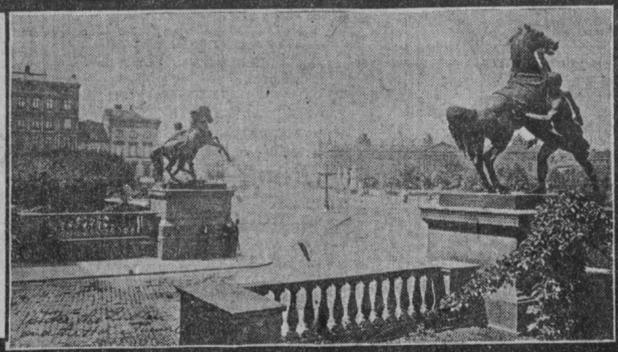
BERLIN By DELIA AUSTRALIAN The CAPITAL of the GERMAN EMPIRE



Wilhelmplatz



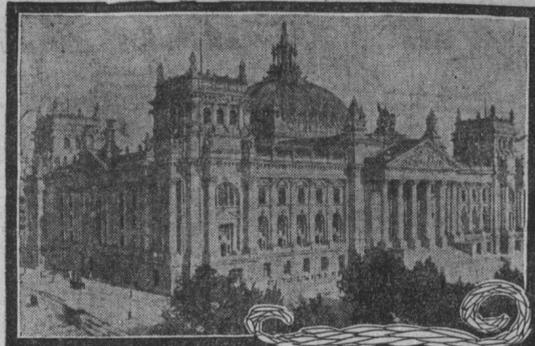
The Exchange



Unter den Linden, The Fashionable Boulevard



The Sieges Allee, The Statues are those of Prussian Rulers



The splendid Government Building

HOUGH Berlin is a beautiful city and is splendidly kept, this has been accomplished by no small expenditure of time and money. For the capital of the Prussian Empire was conceived and developed along old lines and had to be reshaped and rebuilt. Hardly more than a century ago this city was poor and exceedingly modest; it was not until it became the capital of the Prussian Empire that it assumed this new appearance of splendor. The last three rulers more especially have given a great deal of time and a large part of their own private fortunes making Berlin one of the handsomest cities in Europe. Many of the finest boulevards were lengthened and enlarged; new gardens were created and many of the older and poorer tenement districts were destroyed, and in their stead were made newly paved streets, with modern, well-constructed dwellings.

Though the handsomest of the palaces and churches have been built for centuries, many of the old government buildings and public offices were torn down and new ones put in their places. The same is true of the old-fashioned shops and office buildings; their places have been taken by handsome, spacious structures. The people of Berlin are wonderfully proud of the improvements that have come to the capital, as well as the care they bestow on their boulevards and parks. The most popular thoroughfare, Unter den Linden, is a long boulevard lined with a double row of lime trees and chestnuts. It is delightful on a pleasant day to drive along this splendid

boulevard out through the Brandenburg portal into the Tiergarten. This handsome gate was erected at the end of the eighteenth century in imitation of the Propylea at Athens. It has five driveways, and each is separated by large doric columns. The main entrance is always guarded and is only used by the Emperor. This gate is surmounted by a quadriga of Victory, which was taken to Paris by the French in 1807, but was restored some years later. The famous Unter den Linden is nearly 200 feet wide and two miles long, and is richly ornamented with handsome buildings. At one end are the imperial palaces, the arsenal and the academy, while the Brandenburg gate and the great equestrian statue of Frederick the Great at the other extremity enclose a fine vista. This mass of fine buildings and the ornamented open spaces around and between show a brilliant and unique scene on a pleasant afternoon in midwinter, which is hardly rivaled in Europe. St. James, the parliament buildings, and Westminster Abbey may be finer on a summer morning; the Champs Elysees is finer at night, but Unter den Linden presents a regal scene at 4 o'clock in winter, when the setting sun shows its golden light on these handsome buildings, the gay throng of soldiers in uniform, state carriages and automobiles.

On Sunday the boulevard presents a somewhat different picture; though less elegant, it is certainly more picturesque and Bohemian. By noon the street is thronged by people in holiday attire. The restaurants are crowded, giving a rich

note to this happy, cosmopolitan life. Here is the bourgeoisie and his sweetheart out for a lark, making a meal of boiled lobster and beer. There are wealthy merchants, lawyers, doctors and their families forgetting the more serious things of life. Everywhere are well-groomed officers eating without a thought of expense and their debts. Besides the many Germans, there are foreigners of many nationalities. Luncheon over, the great crowds surge up the boulevards, tarrying before the shops, where are displayed a great array of finery. None is able to pass the old museum without taking time to gaze at it in admiration because of its design and splendid proportions. Towering above the museum is the old castle, large and impressive, made more stately because of its splendid dome. Beautiful as this building is when viewed from near, its real beauty is seen from the Kurfuersten Brucke, southeast of the old palace. This bridge is one of the handsomest in Germany. It is made of stone with massive pillars, while the buttresses are carved with exquisite care. From here the water front of the old castle comes into full view, with the

fortified part unaltered since the early occupation of the Hohenzollerns. The strong, sturdy columns and turrets cut the sky in sharp outline. In the center of this bridge is the equestrian statue of the great elector, known for its colossal size and fine workmanship. The Wilhelm Strasse running from a point near the Pariser Platz, south from Unter den Linden, has many palaces and public buildings. Most interesting is the palace where Prince Bismarck once lived. Though the gardens are beautiful and the houses spacious, it is furnished with marked simplicity. Interesting though these two boulevards are, the most attractive part is outside the Brandenburg portal at the Koenig Platz. In the center of this court is the monument of Victory inaugurated in 1873. Its pedestal is richly adorned with reliefs in bronze, and the base of the column is surrounded by an open colonnade embellished with Venetian mosaics illustrating the war of 1870 and the restoration of the Empire. Close to the statue of Victory is the hall of the Imperial Diet. It is enormously large, done in the florid Italian Renaissance style. The central part is covered

with a large glass dome. Far more beautiful than Unter den Linden is the Tiergarten, so called because it was once a zoological garden. There is no park like it combining the character of a natural forest, rich in elms and chestnuts, and the more artificial beauty of a public park. The pleasantest part is the Sea Park, where the skating is done in the winter time. The finest statue in the Tiergarten is the marble monument of Frederick William III. Though the place is rich in natural beauty, it has many handsome statues, for the broad Elgiez Allee is adorned with statues of Prussian rulers. Rivaling the splendor is the wonderful nature of the park, rich in wild forest, streams, ponds, bridges and miles of shaded avenues. It covers an area of 600 acres and forms one of the largest and most useful parks in Europe. The west end of Berlin is quite as attractive, for here are some of the finer aristocratic residences, with beautiful homes and large well-kept grounds. In their midst are the splendid botanical and zoological gardens. The Botanical Gardens are exceedingly extensive and

include a large variety of plants and cut flowers. The hothouses have an elaborate display of palms, rubber plants and ferns from all countries. Many rare plants and flower beds are set out in the gardens, where there are plenty of seats and lawns. The Zoological Gardens are quite as extensive; the collection includes animals from every part of the world; they are housed in picturesque homes of original design. Berlin has many extensive museums and all the rare collections are displayed in large spacious buildings. One of the handsomest is the Koeniglichen museum, which is rich in its ethnological exhibits, representing the works of savages and barbarism of every land. There are weapons from earliest times, cooking utensils, jewelry and pottery made by primitive people. The most valuable collection is the one gathered by Dr. Schlegelmann at Troy in 1871. In this collection are many varieties of pottery and vessels made of bronze, also, gold bracelets, buttons, ear-rings, long chains and vessels of gold and silver.

Another museum of much interest is the Arsenal; the collection consists of guns, cannons, and flags that were used by the German people in their battles, besides those captured from the French. The halls of the generals are adorned with twelve mural paintings of battles. The palace of the present emperor is large and beautiful. Its most attractive rooms are the white rooms used on state occasions decorated with silver plate once the property of Frederick the Great. Though the palace of the old Kaiser is somewhat simpler, it has priceless art collections. The room, even to the window-sills, is done in malachite. All the rooms are filled with splendid curios, but Emperor William is a great collector.

Near to the palace are the old and new galleries. The old gallery contains a number of works of the great masters, including Van Dyke, Rubens, Raphael and Andre del Sarto, while the national gallery has some of the best modern works. The most interesting painting in this gallery is the original portrait of the well-known Countess Potowski. The museum has many interesting things, especially its mummies and their coffins. The Pergamon Museum is even more beautiful; it is made of marble and holds the remains of the Greek author that stood at Pergamon, in Asia Minor, and also has a magnificent marble statue of Athena done in ivory and gold.

Berlin is as well kept as it is attractive; great care and plenty of money is spent cleaning the streets and bettering the houses of the poor. The cleaning

and watering of the streets is carried out in the same systematic and efficient manner that characterizes all the municipal departments. More than 30 miles of street is laid down in asphalt. The poorest quarters are well kept. There are no signs of poverty even where the houses are scanty, in their furnishings, and the women and children are poorly clad.

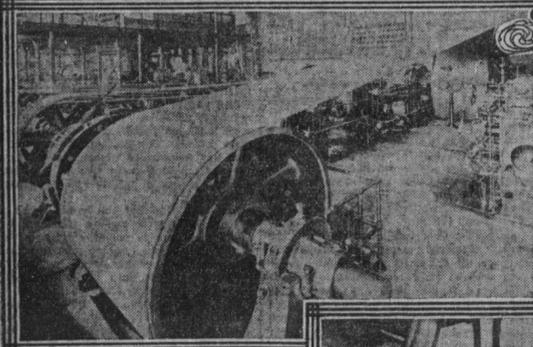
In the principal parks space is set apart for gymnastic apparatus of all sorts provided for the use of common school children, under the care of their teachers.

The suburbs do much to enhance the beauty of the city. There are few finer royal residences than at Potsdam. The old palace is very interesting. In one room is a large painting, which represents a dinner party, at which the Emperor, Voltaire and others are the guests. The French philosopher is talking, and Frederick is shown as an attentive listener. On the way to the Orangery is the famous windmill, which is royal property, though it once belonged to a humble miller. The great German Emperor desired the property on which the mill was standing, but the poor farmer refused to sell it.

The Orangery is a handsome palace in Florentine style, and was built by the brother of the old Kaiser. The palace was so called on account of the conservatory where the orange trees and other tropical plants are kept. On the terrace is a splendid copy of the great Farnese Bull. From the Orangery rises the new Sans Souci, built by Frederick the Great, now used in summer as a royal residence. The rooms are many and elaborate. Most interesting is the shell room, inlaid with shells, minerals and precious stones. To the west of the palace are wonderful parks, adorned with fountains, marble statues and gardens. All about are dense forests of pines, elms and a placid lake into which the Havel River flows. Here is a charming view of the river and of Peacock Island, where stands the summer house of Queen Louise. It is a lovely bit of Italian architecture adorned with two high towers, with a front partly broken to give it the effect of being a ruin. The place is simply furnished and shown that the queen sought comfort here rather than luxury. It is at sunset that the place becomes radiant, when the last rays give a golden glow to the lonely palace, the brilliantly colored trees and the placid stream murmuring a lullaby about the great German capital and the splendid Prussian Empire.

THE MAKING OF A BELT

By THOMAS WILSON



Main Drive in a Power House. A 12 inch Belt

HERE is nothing prettier or more inspiring to an engineer than a great, almost silent engine-room in perfect order, grinding out the vast horsepower necessary to operate huge industrial plants. To the layman the most interesting feature of such an engine-room is the main belt, a huge piece of leather probably five or six feet wide, a hundred or more feet long and half an inch thick that travels from one giant wheel to another at a speed of a mile or more a minute.

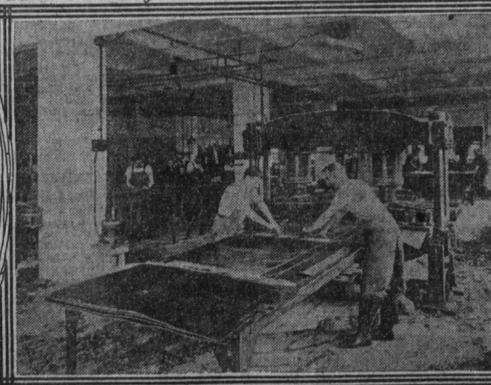
In addition to the main "drive" there are many other belts ranging in width from an inch to a foot, all of which do their share of the work. The question most asked in an engine-room is "Where do the belts come from?" and then, if one feels sufficiently interested, a visit to a belt factory is most interesting. To begin with the raw hide just as it is after it has been stripped from the steer and follow it through the various processes until you see it upon the driving wheel of an engine would take considerable time, probably five months or so.

Strange to say there is much similarity between the tanning of a steer's hide in this year of 1908 and the tanning process of a century or two centuries or unnumbered centuries ago. Oak bark tanning produces the same chemical change in the hide, and through much the same process in the oak forests of Tennessee now as it did on the banks of the Nile when Pharaoh's horses were harnessed to chariots with the same kind of leather that goes into the harness of the twentieth century tally-ho coaching team. Many of the distinct steps to the completion of the process have always been the same as far as any record shows. Even many of the tools used by tanners have been but little changed.

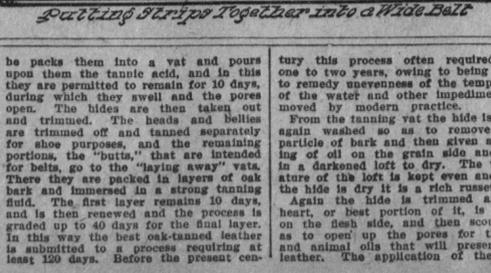
On the other hand, there has been considerable change in certain directions in connection with the tannery business. Chemistry has been found a great aid,



Hides as they come to the factory



Cutting Hides into Strips



Putting Strips Together into a Wide Belt

while modern machinery takes the place of much work that was formerly done by hand and economy is practiced in every department. Many portions of the hide that were at one time thrown away are now saved and utilized. When the tanner receives a hide it is first washed or soaked in water to remove all dirt and salt. It is then placed in a vat of weak lime-water, which is gradually strengthened until the sixth day to loosen the hair. The next step is "unhairing," and this is done by laying the hide across a beam and scraping the hair off with a blunt knife. This work in some tanneries is done by hand, but a machine to do the work has been invented and found satisfactory.

The bare hide is then placed in a bath of water and weak chemicals to remove any of the lime from the previous bath, and then it goes to the "handler," who gives it the first bath of tanning liquor. The old machine, akin to a huge coffee grinder, has been replaced by a much more rapid machine, and as the crushed oak bark drops from the hopper it is caught and blown to the "leech tubs." These tubs hold several tons of bark upon which water is sprinkled. This water, as it filters through, creates the tannic acid, and, passing through a false bottom, is pumped into tanks and stored ready for the "handler." As the hides come to the "handler"

he packs them into a vat and pours upon them the tannic acid, and in this they are permitted to remain for 10 days, during which they swell and the pores open. The hides are then taken out and trimmed. The heads and bellies are trimmed off and tanned separately for shoe purposes, and the remaining portions, the "butts," that are intended for belts, go to the "laying away" vats. There they are packed in layers of oak bark and immersed in a strong tanning fluid. The first layer remains 10 days, and is then renewed and the process is graded up to 40 days for the final layer. In this way the best oak-tanned leather is submitted to a process requiring at least 120 days. Before the present cen-

tury this process often required from one to two years, owing to being unable to remedy unevenness of the temperature of the water and other impediments removed by modern practice. From the tanning vat the hide is taken, again washed so as to remove every particle of bark and then given a dressing of oil on the grain side and hung in a darkened loft to dry. The temperature of the loft is kept even and when the hide is dry it is a rich russet color. Again the hide is trimmed and the heart, or best portion of it, is shaved on the flesh side, and then scoured so as to open up the pores for the fish and animal oils that will preserve the leather. The application of these oils



Feathering and Lapping Strips

is called "stufing" and upon the thoroughness of this process depends the life of the belt. The stuffing completed the leather is ready for the beltmaker. When the tanned hides, ready for manufacture, arrive at the belt factory they are taken to the cutting rooms, where they are marked for widths and are then turned over to men at tables, who have rapidly-revolving knives not unlike a circular saw in principle. This knife slices through the toughest leather as though it were paper, and one man will, in the course of a day, cut up as many as 200 hides.

The next process is the cutting down and feathering of the ends of each strip. This is done partially by a machine that takes off the greater portion of the leather, but the final touch must be made by hand, as no machine will feather the edge to the fineness that is requisite for an even lap joint.

The feathering of the ends is done for the purpose of joining the strips into a continuous belt and the art in joining is to make the joint so fine that it cannot be detected. More than that, each strip must be joined to the other at a perfectly true right angle, so that the entire belt shall not vary a hair's breadth from straight. When the strips have been feathered and adjusted cement is applied and the jointed part is placed under a hydraulic press and subjected to a pressure of a couple of tons, according to the width of the belt, the smaller ones needing less pressure. From the press the strips, which are now dignified with the name of belts, are sent to a machine which has two knives adjusted to the exact width that the finished belt is to be and the outer edges of the leather are shaved off and the belt comes out the other end ready to go to the spool on which it is wound and given a final polish, after which it is wound on another spool and ready to be shipped out and take its place in the industrial world. There is just one more intermediary process that may or

may not be applied, and that is another "stufing" with an oil compound that will make the leather steam and water proof. Practically every beltmaker has his own compound for this process, but the process has been brought to a marvellous degree of perfection and there are now on the markets belts that shed water like a duck's back.

Naturally in a belt factory the greatest interest is in the larger belts. These transmiters of power are two and three ply; that is, made up of two and three thicknesses or layers. In the making of a belt of 50 inches or more in width more skill is required and more care must be exercised, for while the ends of the strips are feathered, the smaller ones need only be single, the surfaces of the strips must be perfectly flat. Some manufacturers in making a two or three ply belt use a square butt joint which is considered as good as the feathered joint, though it is, perhaps, a greater test of the strength of the cement.

In making a two-ply belt 54 inches wide the lower ply is made up of two strips, one 30 and the other 27 inches wide. The upper ply is made up of three strips, two of which are 18 and one 24 inches wide. When the five strips are "plied" the various joints are separated throughout the width and length and after the whole has undergone a pressure of a couple of tons there is a solidity about the belt that gives it every characteristic of having been made from one hide of abnormal length and thickness.

The belts running from 60 to 84 inches are three ply and in making them the principle is the same as in the two ply and the strips necessary are "plied" so as to make all joints at different points.

To make a three-ply belt 72 inches wide and 100 feet long it requires the hides of 225 steers, but it will transmit 2,000 horsepower and will run enough machinery to turn out \$1,000,000 worth of finished product in a year; at least that is what one of these belts is now doing.