

A Marvellous Museum

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ings underlying it. No verbal description could approach in vividness this representation of what a mine really is. But the man who designed this department was not content with pictures and models. The most remarkable thing about this section is the reproduction of a coal mine in cellars beneath. It is the admiration of all who visit it. Its walls and ceilings are constructed of rough timbers, and in the different chambers are to be seen startlingly life-like figures of miners at work. One is lying on his back, painfully picking at a narrow seam of coal, another is carrying a safety lamp, and on a shelf in this chamber are actual mine lamps of all ages. Two men are seen working a hand-drill, and a third is exploring a gas-filled passage, with an oxygen tank on his back, and diver-like helmet on his head. Others are conveying coal by barrow, or windlass and chain. On one side is a mine stable, with a figure of a mule.

In an open chamber a museum attendant is ready to show the operation of the latest type of electrical drill, and close at hand is the newest pattern of an electric mining motor-truck. The whole exhibit is a marvel of ingenuity, and its educational value cannot be over-estimated.

In the department of the metallurgy of iron, which follows that of mining, there is a systematic and historical survey of the whole iron and steel industry, showing the evolution of blast furnaces, coke-ovens, gas-heaters, with models of old and new types of furnaces. Then follow three rooms which exhibit the rolling, forging and casting of iron. Here may be seen the old process of welding, followed by the latest methods of treatment by water-gas, acetylene, oxygen, combustible aluminum and electric current.

VERY interesting is the hall devoted to "oldest steam-engines." The exhibit begins with the elementary trials of air-pressure by Otto von Guericke, the famous burgomaster of Magdeburg, who was the discoverer of air-pressure and made the first air-pump, now in this museum, as are also his iron Magdeburg hemispheres. There is a fine picture on the wall, showing the hemispheres held together by exhausting the air, with teams of horses vainly trying to pull them apart. This was one of the wonders of the seventeenth century, and von Guericke's discovery created a new department of science. In the same hall are an old steam-engine made by Watt, and also his original waggon-boiler. Here are also models of the first locomotive, "Puffing Billy," Stephenson's "Rocket," and finally a Mogul locomotive, completely sectionalized, and capable of being set in motion. In the yard adjoining this section there are originals of the first railway tracks, models of the latest methods of track-building, and all manner of devices for signalling and for the protection of life. The adjoining section exemplifies, with remarkable completeness, every known means of transport, from the earliest type of sled, waggon and chair, to the most improved motor-car.

Three rooms are devoted to Agriculture, where again the subject is treated historically. In the first hall are exhibited the most primitive methods of tilling the soil, with models of the earliest known implements—a man and his wife, rudely roped to a forked stick, straining every muscle to scratch the surface of the soil. Then in succession are the slow improvements in the science of plowing, strikingly shown by means of life-like models. Next are the processes of harrowing and seed-sowing, while charts and other exhibits illustrate the various ways of rendering the soil more productive. The second room contains the primitive implements for producing and caring for crops, and the gradual improvements up to the modern mowers and threshers. There is also a clear setting forth of the conditions necessary for the care of animals, showing how progress has been made in the art of cattle-breeding. The third room treats of the subject of milk-production, with historically arranged implements and appliances in use in different countries, and the gradual evolution of the most scientific methods of treating milk

for the safe-guarding of human health.

Such an exhibit would have immense value in Canada, where this subject is of such prime importance, and where so little is known or practised by the average Canadian farmer. Why should not the directors of the Provincial exhibition establish a permanent exhibit of this kind? It would do more to quicken the intelligence and rouse the ambition of our farmers than any number of lectures or government bulletins. Place the good method and the bad side by side in practical demonstration, and you produce an indelible impression on even the slowest intelligence.

Closely allied to agriculture is the subject of road-making, one of great importance to a new country like Canada. The old Roman roads are illustrated by several interesting models, including a section of the Appian way, perhaps the most famous road in history. A glance at the cross-section shown in the model is sufficient explanation of the fact that it has lasted for over two thousand years. There are also placed side by side models of badly constructed and well-made modern roads, with useful information as to good and bad road metal, and the best methods of road-drainage.

Besides the high-roads, the building of city streets, for which the German cities are famous, is demonstrated by an immense, indeed, almost full-sized, cross-section of a modern city street, with its main and supplementary conduits. It is of interest to note that the conduits needing periodical inspection are placed beneath the side-walks, so as to interfere as little as possible with traffic. In this exhibit there is a very practical illustration of the various methods of carrying for waste water and sewage by means of chemical, biological and mechanical purifying plants, and irrigation fields. In fact, this section affords a splendid lesson in municipal hygiene.

A department that attracts many visitors is that of Human Dwellings. Here are beautiful models of the primitive caves and huts of all uncivilized peoples, and the movable dwellings of the nomads. Every known race is represented, from the Esquimaux to the Southern Islanders and Patagonians, and from the Japanese to the British Columbian Indians. Very picturesque is the model of a lake-dwelling in Switzerland of about the year B.C. 1500, reconstructed by a Swiss scientist. One or two of these models are life-sized, and can be entered by visitors. Buildings of a later period are in sections, and the tops can be lifted to show the interiors, containing figures of the inhabitants at their daily occupations. These models are made by a staff of mechanics in the permanent employ of the museum. An instructive exhibit is that of two houses, one labelled "unsanitary," and the other a good type of a modern house with simple but complete sanitary devices. The best methods of constructing buildings of steel and re-inforced concrete are also fully exemplified.

There are sixty-eight separate and distinct departments in the Deutsches Museum, in all of which the method is the same. Space permits of the mention of but one more, that of Aeronautics, perhaps the most typical of the systematic thoroughness which characterizes the founders of this national store-house of knowledge. Many rooms are occupied by this remarkable exhibit. In the first is shown the flying mechanism of seeds and animals. There are reproductions of pre-historic birds of prey, of the flying-fish and of the bat. The eagle, the vulture and the gull are exhibited by three examples of each; first, the complete bird with wings outstretched, then the skeleton, and finally the bird with its feathers partially removed to show the mechanism of its flying apparatus. There are also carrier pigeons, showing methods of attachment of objects to the body, from the thin paper roll to the photographic camera. In the centre of this room is a large revolving disk to show all the motions of the wings of a bird in flight. The flying contrivances that have been the prototypes of artificial construction in ancient times are followed by the invention and evolution of balloons. First are the captive balloons, with comprehensive explanations

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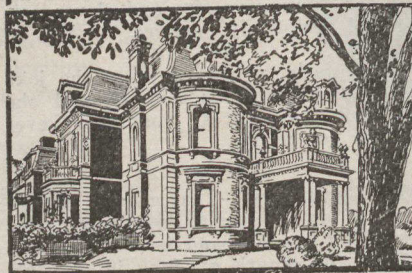
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