time between the two cities is that now, but when the time it takes to get to the city centre is added it's much more time consuming.

HOW IT WORKS

Research is now being done by a group of a dozen scientists and engineers assembled by the Canadian Institute For Guided Ground Transportation. The Institute, which is about two years old, receives $60,000 a year from the federal Transport Department.

The fundamentals of the magnetic-lift system seem relatively straightforward. The central elements are tracks and cars. The tracks would be aluminum and the electric current would pass through them constantly, the cars would look like railway cars, and would have eight super-magnets running along their bottom edges.

The current in the track would get the train started on wheels. Once it was moving, the magnets on the cars would lift the train and the wheels to six or eight inches off the track.

"LIFT"

The "field throw-out" by the cars' magnets would start small currents in the track, which would "repel" the train, causing it to lift off the tracks. Once the train had gathered speed, it could be increased up to 300 miles an hour, depending on weather and wind conditions.

To stop the train the current in the track would be reversed. The principle, says Professor Atherton, is the same as reversing the pitch on a propeller.

WELDING HELMET

Consultation at Atomic Energy of Canada's Whiteshell Nuclear Research Establishment between welders and N.P. Cliche, Radiation and Industrial Safety foreman, has produced equipment that gives welders working in confined spaces protection, while avoiding the problems presented by the bulky standard helmet.

A helmet, a "must" for a welder, protects him from several hazards. Most important, the brilliant glare of welding or cutting torches is dimmed by a filter-lens, allowing safe viewing while work is in progress. The helmet must be large enough to shield the welder's face, ears and neck from – strangely enough – sunburn (ultraviolet light produced during a welding operation is strong enough to give painful burns in a matter of hours).

Earlier attempts at the WNR Establishment to produce a more compact unit resulted in a cloth hood of fire-retardant material that covered most of the head with a slot for viewing covered by goggles. While it solved the problem of bulkiness, the hood provided the necessary protection.

However, it was tight-fitting and, as a result, was hot and uncomfortable. Because the welder had to put on his goggles after he got into his working area, he sometimes had difficulty manoeuvering.

An improvement made last year replaced the cloth hood with a plastic bubble – again of fire-retardant material – in which the protective filter lens was fixed. The gain in comfort without the added bulk was substantial and an air-valve fitted into the bubble permitted the exhaust of warm, moist air. To protect the neck and ears from "sunburn", covers were made of the same fire-retardant cloth used in the original hood.

Although the modification was a great improvement over the first attempt, it had some minor drawbacks.

Later in the same year, Peter Cliche and his group – who are responsible for adequate head and respiratory protection for all plant personnel – devised a headgear to be worn by protective services personnel who might be called on to do torch work under emergency conditions.

To meet the most demanding conditions, the basic part of the unit is a demand-air respirator face-mask with a slight modification for linking with the continuous air-supply system available in most of the buildings at WNRE. Another innovation useful for everyday wear is a flip-up lens that can be left open while the welder is moving into the area, then easily moved into position in preparation for welding.

Welder Bill Dereski prepares to put on a compact and versatile welding helmet developed at the Whiteshell Nuclear Research Establishment. The helmet features a modification which permits the use of an auxiliary air supply system.