

UNDETERRED by the Arab boycott, an American firm with a stake in local science-based industry this week announced that it will be increasing its activities in Israel. The firm, Miles Laboratories of Elkhart, Indiana, plans to invest an additional £8 million in its Israeli subsidiaries, which produce everything from the company's famous Alka-Seltzer to a broad range of sophisticated chemicals for research laboratories.

Two of the Miles' ventures in Israel are closely linked with local institutions of higher learning. Miles-Yeda, located next to the Weizmann Institute in Rehovot, makes research chemicals based on Institute know-how. These include lectins, spingolipids, affinity chromatography material, peptides, O¹⁷ and O¹⁸ stable isotopic compounds and a considerable number of immunochemicals. At Ames-Yissum in Jerusalem, where Hebrew University research is utilised, diagnostic kits for testing the thyroid level in blood are the main product. Export sales of these science-based firms last year hit £1.2 million.

Miles, a "non-Jewish" company, was not attracted to the country by sentiment but by the chance of making a profit. The Israeli Government realises this and does its part to encourage science-based industries by giving them loans and grants, as well as by fostering the establishment of special science-based industrial parks near universities and research centres.

The conditions offered are apparently so attractive that many enterprises which could hardly be called science-based try to push their way into these parks. In order to ensure that the parks serve the purpose for which they were established, the Ministry of Commerce and Industry announced this week that only enterprises which have ties with nearby academic centres would be allowed into them. Those firms already in the parks will only be allowed to expand if they carry on a substantial R & D programme of their own.

As elsewhere, orders from the military have played a key role in the development of science-based industry, notably in the electronics field. Some achievements in electronics have been publicised; others are still under wraps.

Publicity often comes when the firms concerned seek to enter the export market. This is probably the reason why Israel Aircraft Industries, which already has multimillion pound overseas sales of rockets and planes to its credit, last week unveiled the Autocommander, a supersonic automatic pilot.

Fully automated, the Autocommander relieves pilots of mechanical

flight routine and enables them to concentrate on target pinpointing and other tasks while flying at more than twice the speed of sound. It incorporates a reliable and fast-working detection system, including dual circuits, which ensure smooth functioning even if part of the device should fail. Now being produced for the Israel Air Force, the Autocommander may become a major export item.

● The military situation has also given impetus to research on war-related medical problems, such as that conducted by Professor Arye Weinrab of the Hebrew University and Mr Ezra Loewinger of the Hadassah-Hebrew University Medical Centre on the detection and identification of metal

Letter from Israel

from Nechemia Meyers

splinters which enter deep into the eyeball as a result of accidents or battle injuries. Exact information about such splinters is important for surgeons, who must decide whether a delicate and difficult operation on the vitreous body of the eye must be performed.

If the metal in the eye is steel, it may be removed by an electromagnet. Chips of many other metals, though a source of irritation, can be left in the eye as they do not cause biochemical damage. Copper splinters, however, present a special problem. Sometimes the fragment of copper becomes encapsulated in the vitreous body of the eye and is rendered at least temporarily harmless. On other occasions, the fragment of copper dissolves, releasing copper ions which, if they reach a certain level, can cause metal poisoning and an eventual loss of sight. The doctors therefore require some means of keeping a constant watch on the copper level.

Weinrab and Loewinger developed a system to detect the presence of metal ions in the eye by means of X-ray fluorescence. The radiation is measured by a solid state detector which translates the X-ray energy into electric pulses of varying intensity according to the metal present. Before the Yom Kippur War they were doing experiments on rabbits; when the war broke out and soldiers with eye injuries began pouring into Israeli hospitals, the metal detecting test was tried out on them.

In many of the cases involving tank crew members, copper was found. It came not from the tank itself (which is made of steel), but from the copper sheath near the head of the Russian anti-tank missiles hurled at the tanks. The copper melted at the high temperature of detonation, so almost every steel splinter in a tankman's eye was

either encased in copper or had copper adhering to it.

● The severity of eye injuries during the war has led some of the country's leading ophthalmological experts to recommend that all members of armoured and motorised units wear a special plastic shield. Such a shield, already used by Israel Air Force pilots, is made of a plastic compound ten times more resistant than glass to high velocity particles. It is also light, translucent and does not cloud with water vapour.

● This shield will, of course, be of no benefit to men who have already lost their sight in combat, but attention is also being paid to their problems. Chemist Avraham Schwartz of the Defence Ministry's Weapons Development Authority, using spinoff from research on plastic materials, has developed a process for printing books for the blind cheaply, quickly and in multiple copies. In the new process, typewriters punch tapes similar to those of teleprinters, instead of pressing out the usual Braille reliefs. These tapes are mounted on paper, and plastic is poured over them, penetrating the holes. The raised dots that result can be printed on both sides of the sheet of paper, which itself serves as a relief plate for reproduction of the "printed" material.

● The recently suspended talks between Israel and Egypt prompted several dozen scientists to recall an off-the-record discussion they had had some ten years ago with Henry Kissinger, then visiting Israel as a private citizen. It was a discussion with special relevance to the question of how much trust can be placed in US guarantees of an eventual settlement, should one be reached.

The conversation occurred at a time when Kissinger was campaigning against the proliferation of nuclear weapons, and so he naturally urged the scientists present to oppose the development of such weapons by Israel. When Kissinger's presentation was completed, one of the Israelis put forward a question present in everyone's mind. "If," the scientist said, "we were to accept your advice and forego the development of atomic arms in return for an American promise to assist us should we be under threat of attack by a nuclear power, could we be sure that such a promise would be kept?"

After pondering the query for a few moments, the Harvard scholar answered: "No, you couldn't be sure. American policy is made on an empirical, day-to-day basis. It would depend on the circumstances of the situation when the crisis developed." One wonders what kind of an answer Kissinger would give today.