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AUTOMATED ASSEMBLY

In his April, 1981 editorial, Donald Levinthal, editor of **Semiconductor International**, argued that U.S. semiconductor companies should move their assembly operations "back onshore." He points out that IBM, Western Electric, Delco (General Motors), and Texas Instruments, as well as most Japanese firms, have automated their assembly operations, and conduct the bulk of assembly at home plants.

Levinthal argues that offshore operations, though useful in the early stages of the industry, make U.S. semiconductor producers vulnerable to political turmoil abroad. He says, "It would be an almost impossible task to immediately begin onshore assembly in the event of serious political unrest."

Not too many merchant semiconductor firms are likely to follow Levinthal's advice, however. As he points out, "People who make the monetary decisions are always quick to bring up the argument that even if they automated their operations, personnel to operate and maintain the equipment are still less expensive offshore than here in the U.S."

Meanwhile, Electronic Arrays, the Silicon Valley-based subsidiary of Nippon Electric, has introduced automated bonding devices at its

Mountain View plant. Assembly, reports **Electronics** (June 2, 1981), is carried out in a "clean room." One worker, using the automated equipment, replaces 30 manual bonding employees. Equally significant, it takes only two weeks to train a machine operator, while it normally takes about three months "for a worker to become competent at manual bonding."