

Whirring, clanking and wheezing, this automated kitchen is a gourmet gadgeteer's dream as meals made to order come off conveyor belts untouched by human hands

By CLIFFORD B. HICKS

ORBIS IS A PRETTY LITTLE THING, although not the type you'd expect to find around a drive-in restaurant. Her hips are four feet wide, and she's just about the same height.

But despite her short stature, Orbis is absolute boss of a kitchen crew that can, within one hour, turn out 400 hamburgers and the same number of frankfurters; 360 orders of french fries; 175 platters of fried chicken, seafood or onion rings; and a torrent of milk shakes and carbonated drinks. And not a human hand does a lick of the work.

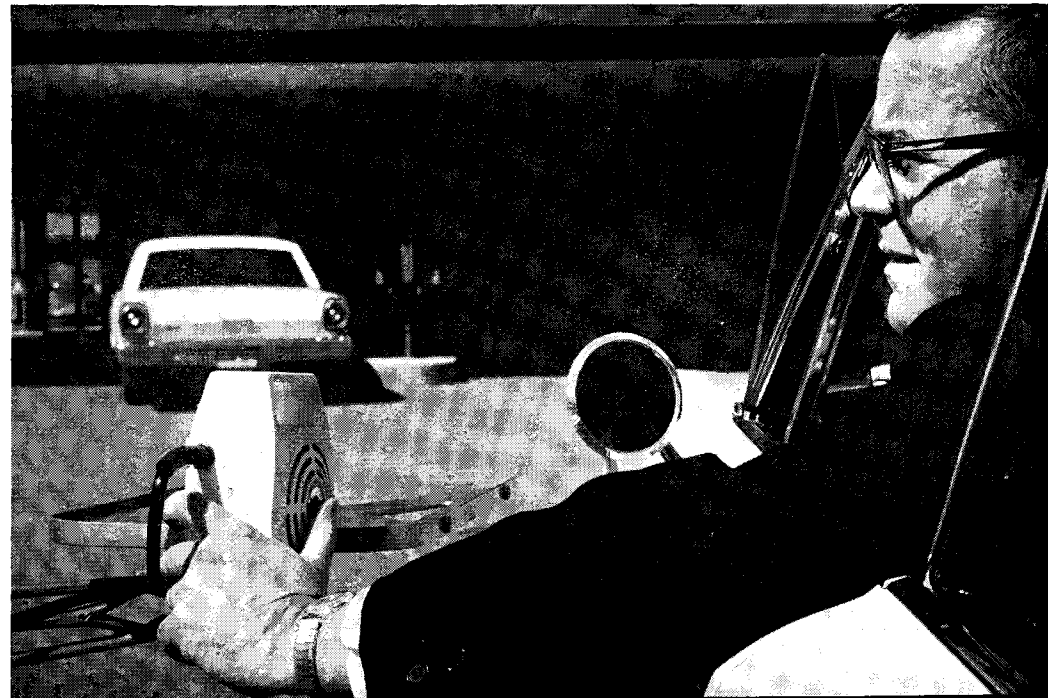
Orbis (for Order, Billing System) is a tidy little computer. She and her busy mechanical helpers were designed by American Machine & Foundry Co. to replace three specialists: the hamburger man, the short-order cook and the soda jerk.

The first AMFare installation is at Jay's Drive-In Restaurant in a tidy, modern eating place in Brooklyn Center, a large, sprawling suburb of Minneapolis. I traveled 400 miles to meet Orbis and

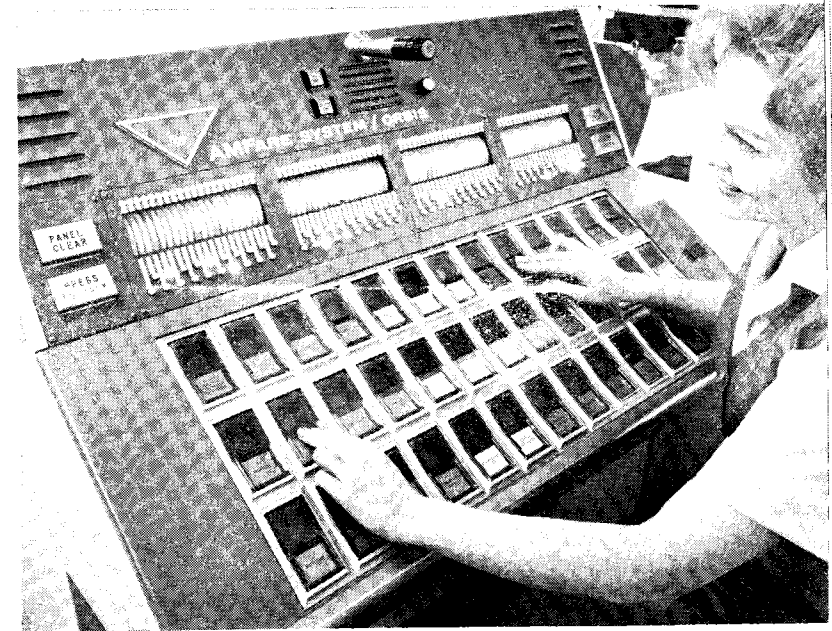
DOUBTFUL AUTHOR PUSHES BUTTON on speaker, which alerts computer operator that he is ready to order. Eighty percent of restaurant's food is prepared by machine



FOOD TUMBLES OUT of all the machines and marches on conveyor belts toward assembly man. He puts up orders in accordance with bills which have automatically been calculated and printed

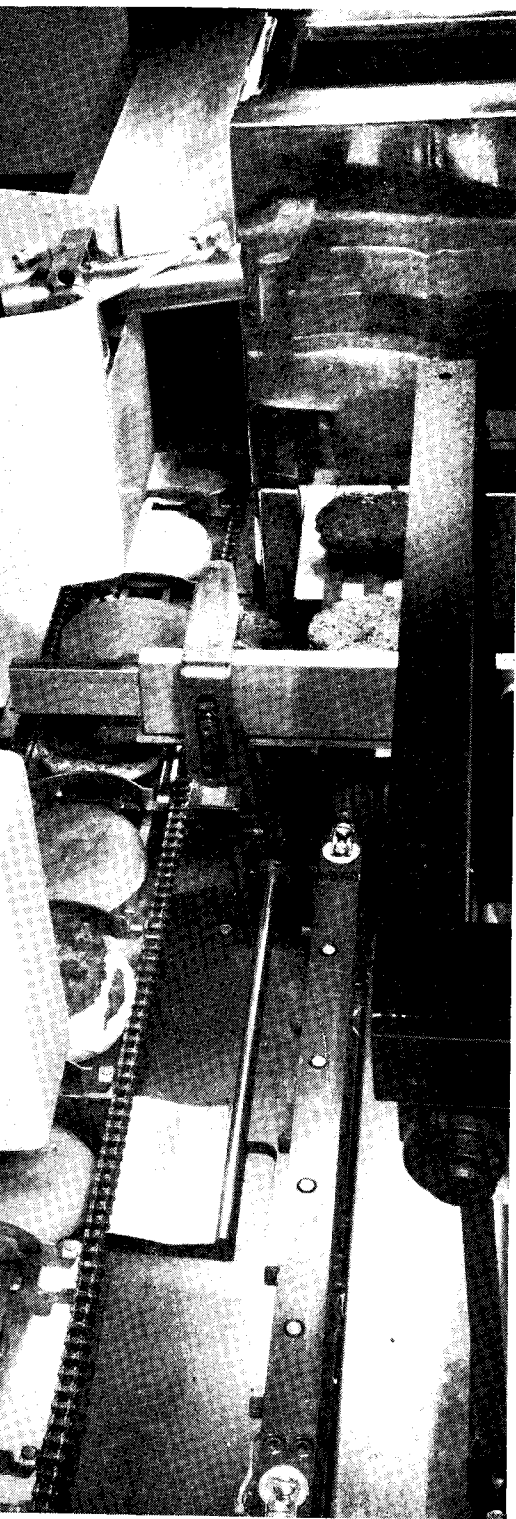


ORBIS the computer (helped a bit by her operator) supervises the kitchen in lonely grandeur. As the customer dictates his order, operator pushes corresponding keys on Orbis. Orbis holds order in her memory system until it has been repeated to customer and acknowledged



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the burgers are topped with sauce or cheese



prove that no machine can substitute for a human being over a hot stove—at least as far as preparing *my* food.

In this aggressive frame of mind I drove into one of the stalls at Jay's, and promptly found myself soothed by soft music from a speaker at my elbow. With a final sneer, I looked at the menu, displayed on a stand nearby, figuring I'd be lucky to be able to select from five items. There were 38 selections.

I pushed the button in the middle of the speaker, and a sexy voice promptly asked for my order. I went all out: a platter of fried chicken with french fries, cheeseburger, hot dog, side order of onion rings, strawberry shake and a cup of coffee with cream.

After the order was repeated to me in the same low voice, I waited 30 seconds, then pushed the button and told Orbis that I'd changed my mind; substitute fish for the chicken, change the malt to chocolate, bring some extra salt, and make the coffee black. That should foul her circuits.

Eight minutes and eleven seconds later my order was delivered by an attractive young thing definitely more robust than robot. I'd planned to argue over the bill, but it was plainly printed by computer, and totaled exactly right.

To make matters worse, it was the best meal I've ever had at a drive-in.

Complacently full of good food, I went inside and joined other customers who were gazing through picture windows at the mechanical wizardry in the kitchen; a gadgeteer's paradise. There's the constant clicking, clacking and whirring of precision thingamajigs, punctuated by an occasional pocketa-pocketa-pocketa as whirligigs whirl buns right and left, dingbats sweep onion rings onto conveyor belts and dohinkies push hot dogs out of squirrel cages into ovens. Food, in various stages of preparation, marches on belts in every direction.

In one corner of the room, Orbis bleeps away. Her operator and an assembly man would be the only humans required in the kitchen, but John Reimann Jr., 38-year-old owner of Jay's, likes to vary the menu with feature soups and sandwiches of the day, which are prepared by hand. Still, 80 percent of Jay's business is turned out by the mechanical chef.

When a customer punches a button on the speaker outside (or picks up a phone at his booth inside the restaurant), Orbis

winks a numbered light corresponding to that station. As the customer orders each item, the operator punches a corresponding key on the computer. When the order is completed and verified, she presses a master key which tells the check calculator to print the bill, and at the same time shoots the order to Mims for processing.

Mims (Menu Item Memory System) is a brain in itself. It not only provides a visual record of every item currently on order and in preparation, but also a running total of the number of each item that has been served so far that day. Mims also distributes orders to the individual cooking machines. Every single item is prepared to order; not one hamburger is cooked unless there's a customer for it.

However, all the machines and roller belts are in operation all the time. When Mims tells the hamburger machine to turn out a double cheeseburger, a knob pops out on a revolving drum. As the knob turns, it tells a submachine to shove a bun through a slashing knife, drop it on a conveyor belt and lift off the top half. Simultaneously it tells the pattymaker to squeeze fresh-ground hamburger into two molds and deposit them on a belt that crawls through a broiling oven.

Four minutes and seven seconds later the meat topples off the conveyor onto the bottom of the toasted bun, another gadget drops a slice of cheese on top, a squirter squirts a special sauce on top of the cheese (if ordered), the top half of the bun descends, and the piping hot burger is wrapped by machine in plastic film. Its contained heat continues to cook it for more than a minute inside the plastic, and at the same time melts the cheese.

Orders of chicken, shrimp, fish and onion rings are stored in refrigerators above the machines.

If you've ordered a shake or a soft drink, Mims turns on the appropriate pump and the liquid squirts into a cup until it rises near the top, where it breaks a light beam to turn off the pump.

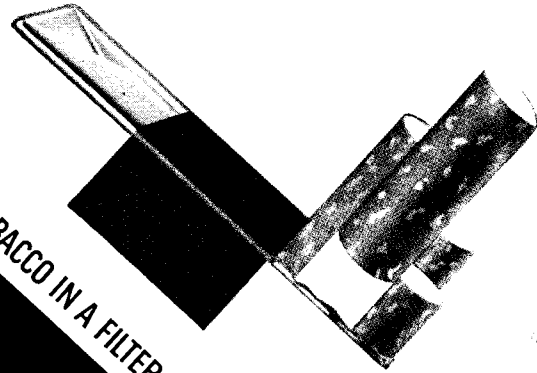
All conveyor belts march straight at the assembly man, who fills the orders in accordance with the preprinted bills that the calculator has turned over to him. Carhops and waitresses promptly pick up the orders for delivery.

The AMF engineers had enough perception *not* to substitute gadgetry for the dazzling carhop. This automation jazz, after all, can be carried too far. ★★★

wrapped in plastic and accompanied by onion rings



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