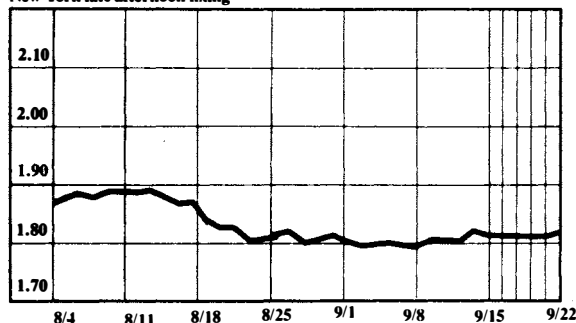


## Currency Rates

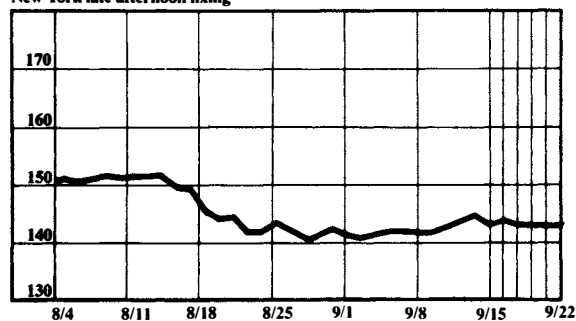
### The dollar in deutschemarks

New York late afternoon fixing



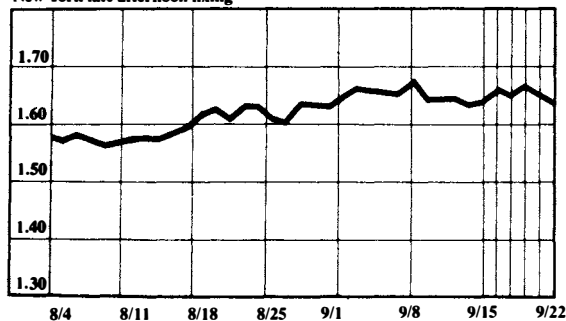
### The dollar in yen

New York late afternoon fixing



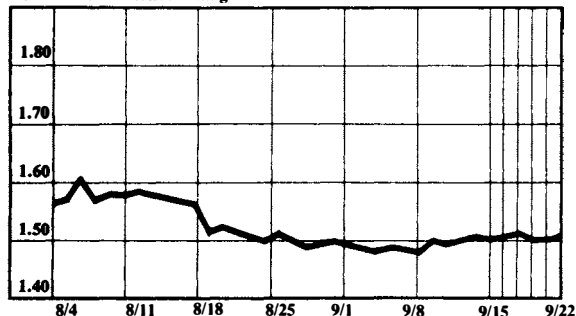
### The British pound in dollars

New York late afternoon fixing



### The dollar in Swiss francs

New York late afternoon fixing



## Ariane success puts Europe back in space

by Laurent Rosenfeld

The night of Sept. 15-16, at 00:45 GMT, the European blue-and-white rocket Ariane took off successfully from its Kourou, French Guyana launch pad. Four minutes and forty-six seconds later, the engine of the third stage, whose ignition failure had caused the two last flight failures, ignited properly.

Another 10 minutes later, the third stage had completed its combustion, and, 26 minutes after take-off time, two communications satellites, the Australian Aussat K3 and the European ECS4, were successfully placed in geostationary transfer orbit (36,056 kilometers apogee, 199.8 kilometers perigee).

This complete success was very much longed for. Since the tragic accident of the Challenger Shuttle in January 1986, and the failure of the 18th flight of Ariane four months later, the West had not been able to launch a commercial-sized satellite. Without even speaking of an increase in Western space capabilities, simple replacement of aging or failing satellites was impossible, which had started to create serious problems.

### Unappealing Soviet offers

Both the Europeans and the Americans, as well as the Japanese, were less than unenthusiastic about Soviet offers to launch Western satellites, for at least one obvious reason: Nobody in Western high-tech companies or defense establishments wished the Soviets to take a look at the sensitive electronics of Western satellites.

Thus, with the success of this 19th Ariane flight, the West recovers at least some space-launch capability, even if it is far from what the U.S. Space Shuttle could do. For Europe, the success was needed not only for the obvious commercial reasons. A meeting of the European Space Agency ministers is planned for this fall, and another failure would have had the worst possible psychological effect at a time when important decisions were to be taken.

In fact, rather than risk unfortunate decisions, many people were actually speaking of postponing this meeting in the event of an Ariane failure.

## Two more launches in 1987

After this success, the company Arianespace plans to launch two more rockets before the end of the year, the first by mid-November. If everything goes right, eight rockets will be launched in 1988 and nine in 1989.

Meanwhile, some improvements will be made. While the present version of Ariane, Ariane-3, has two small strap-on solid boosters, and is able to carry a 2.5-metric-ton payload in geostationary transfer orbit (GTO), next February should see the launching of the first version of Ariane-4, an upgrade over the present version.

Ariane 4, whose first stage will contain 219 tons of propellants instead of 144, will exist in six different models, depending on the addition of two or four solid boosters and of two or four liquid propellant boosters, or of a combination solid/liquid.

Depending on which model is used, the payload launched in GTO will vary from 2 to 4.3 metric tons, for a cost 20-30% below that of Ariane-3.

In order to achieve the rapid launch rate planned for 1988 and 1989, a second launching platform has been commissioned and built for the Ariane program. This second launch pad, which was used successfully for the 17th flight and will be used again for the next flight, will allow two rockets to be prepared for launch simultaneously. The first launching pad, which is not adapted for Ariane-4, will be progressively phased out.

In the more distant future, by 1995-96, a totally new rocket will be constructed, Ariane-5. The Ariane-5 will have only two stages (instead of three for the present versions), but will have much more powerful solid-fuel boosters. It will be able to launch up to 5.9 tons into geostationary transfer orbit, but, more importantly, a couple of years later, it should become the launcher for the manned Hermes hypersonic glider, a kind of mini-shuttle, which could, among other things, service the U.S. space station, if and when it is built.

With Hermes, the European Space Agency should enter the realm of manned flight by about 1997—if the present agenda is adhered to. At a later point, the future should belong to air-breathing launchers taking off horizontally, like a plane. At least three relatively similar proposals have been made in this direction: the German Sanger, the French STS-2000, and the British Hotol.

In general, the European space program tends to lack ambition, thinking only of short-term commercial objectives. It only remains competitive with the United States because the situation in the United States is the same. If both the Europeans and the United States continue to lack vision, not only will the Russians largely outclass the West, but so will Japan and other countries.

The success of this launching of Ariane is a good step toward reestablishing some Western space capabilities, but much more is needed.



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