

# The tools of war

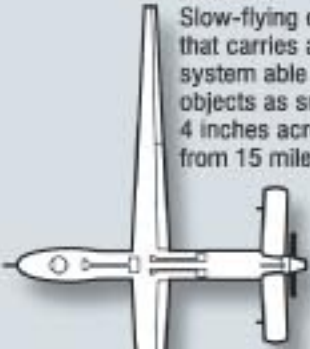
The air attacks began with an opening salvo of cruise missiles and continued with raids by heavy bombers and carrier-launched fighters. The first night's strikes, although the heaviest so far, were modest compared with the opening hours of the Persian Gulf War.

## PRELUDE

Pilotless aircraft called drones, carrying sophisticated cameras and radar, scouted out targets and assessed damage after the raids. Operators controlled the drones from bases hundreds of miles away.

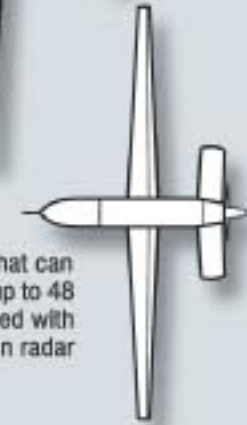
### Predator

Slow-flying drone that carries a radar system able to see objects as small as 4 inches across from 15 miles away



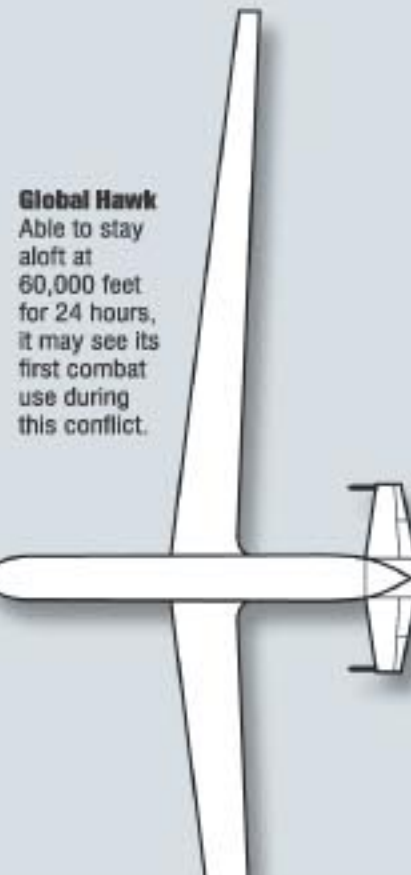
### Gnat

Small drone that can stay aloft for up to 48 hours, equipped with high-resolution radar



### Global Hawk

Able to stay aloft at 60,000 feet for 24 hours, it may see its first combat use during this conflict.



## FIRST WAVE

Launched from ships and submarines hundreds of miles away in the attacks, Tomahawks evade radar by skimming low, powered by a small jet engine. Satellite guidance enables the missile to slam its 1,000-pound warhead into a target with pinpoint accuracy.

### Tomahawk Cruise Missile



## WEAPONS

In the main attack, planes released a combination of "dumb" bombs, "smart" satellite- and laser-guided bombs, and air-to-ground missiles.

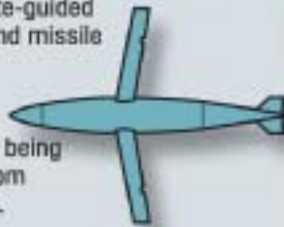


### Joint Direct Attack Munition (JDAM)

A guidance kit attached to an ordinary 1,000- or 2,000-pound gravity bomb converts it into a satellite-guided smart bomb.

### Joint Standoff Weapon (JSOW)

This satellite-guided air-to-ground missile flies up to 45 miles to a target after being dropped from an airplane.



### Standoff Land Attack Missile (SLAM)

Released from an airplane, this jet-powered cruise missile skims over the terrain to a target that can be more than 150 miles away.



### GBU-12 laser-guided bomb

This bomb homes in on its target following a laser aimed by an airman or soldier.



### MK-82 bomb

A 500-pound gravity bomb

## MAIN ATTACK

The attacking planes flew at high altitudes to avoid anti-aircraft fire and, in many cases, required midair refueling to reach their targets and return.

### AFGHANISTAN, first day

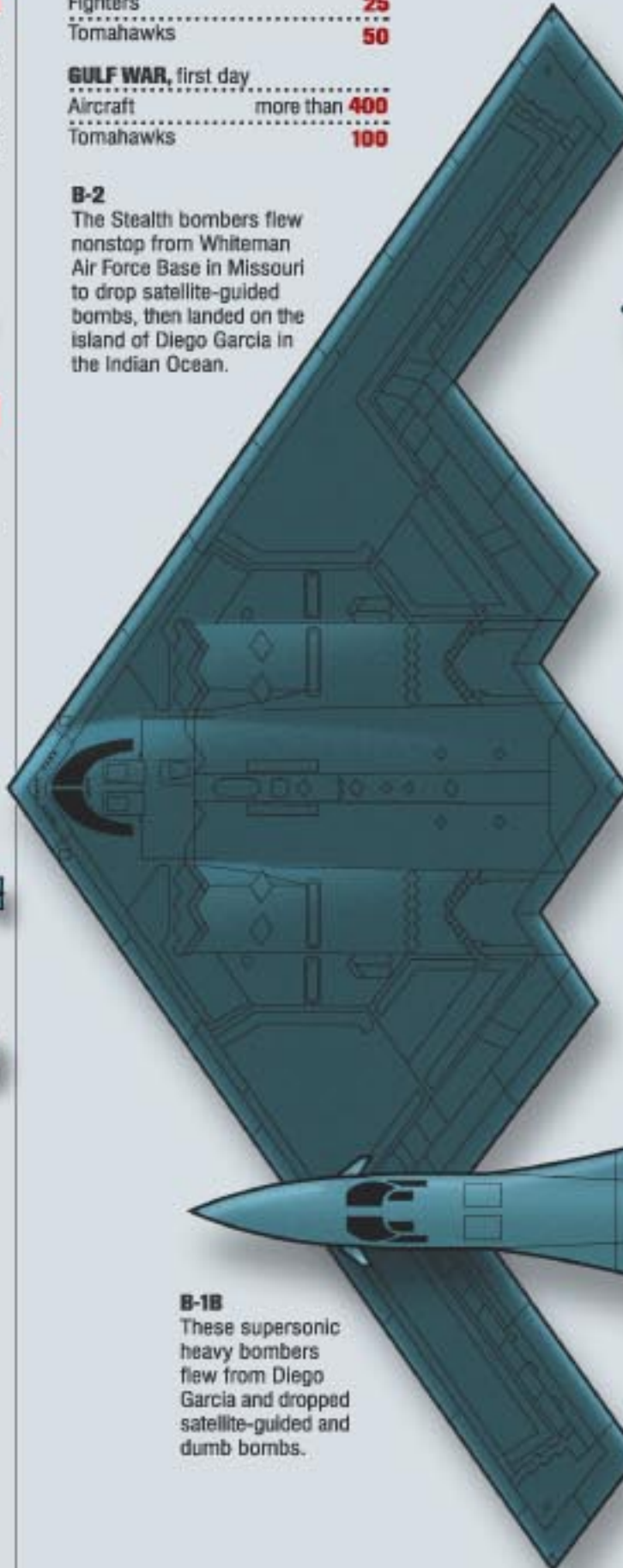
Heavy bombers	15
Fighters	25
Tomahawks	50

### GULF WAR, first day

Aircraft	more than 400
Tomahawks	100

### B-2

The Stealth bombers flew nonstop from Whiteman Air Force Base in Missouri to drop satellite-guided bombs, then landed on the island of Diego Garcia in the Indian Ocean.



### B-1B

These supersonic heavy bombers flew from Diego Garcia and dropped satellite-guided and dumb bombs.

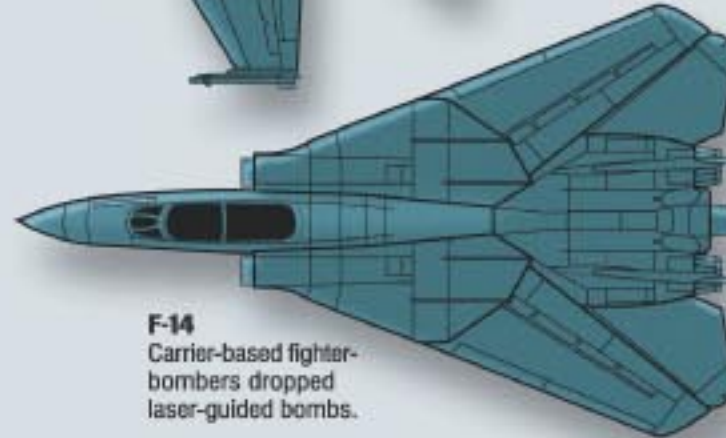
### F/A-18

Carrier-based fighter-bombers dropped laser-guided bombs and launched missiles.



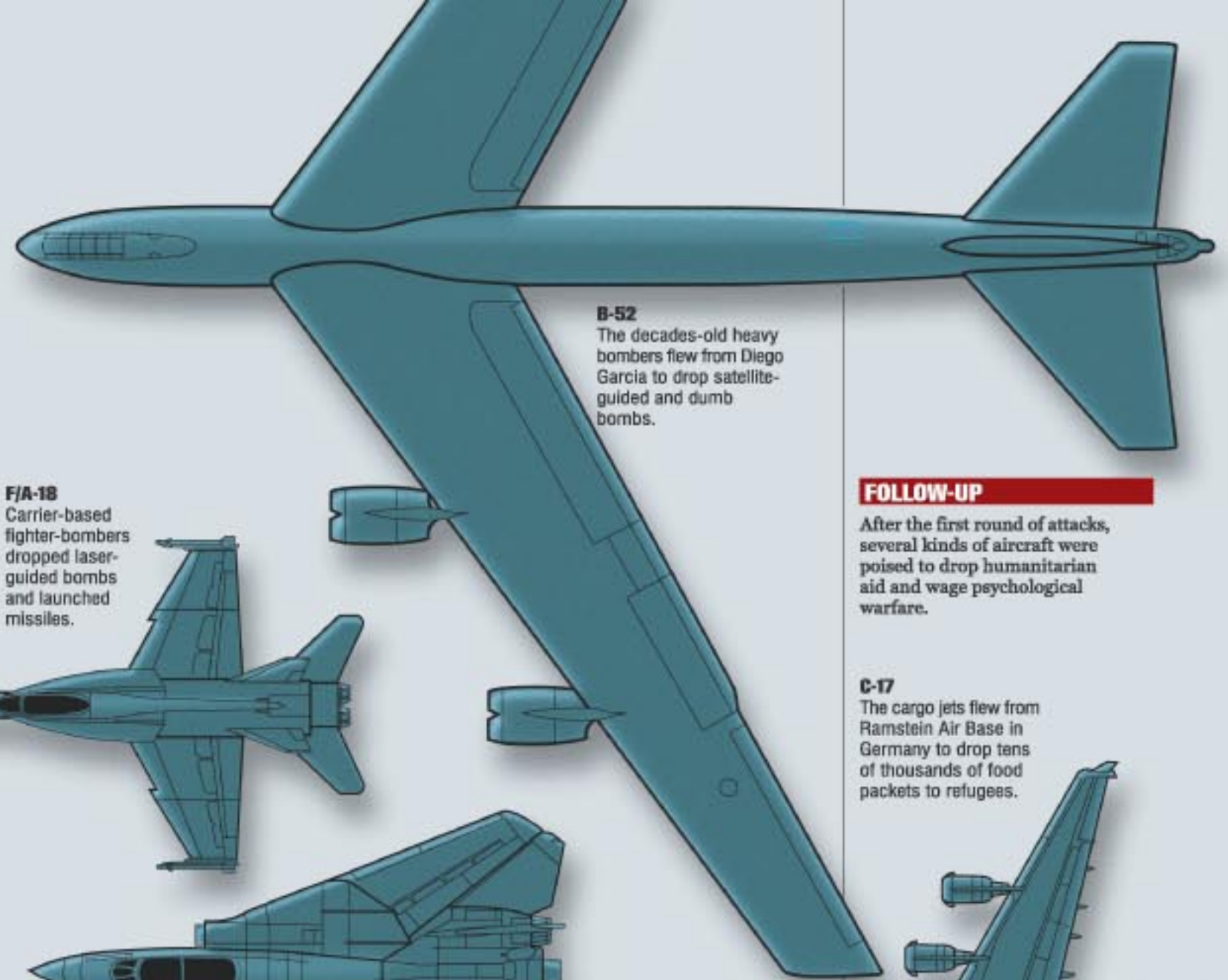
### F-14

Carrier-based fighter-bombers dropped laser-guided bombs.



### B-52

The decades-old heavy bombers flew from Diego Garcia to drop satellite-guided and dumb bombs.

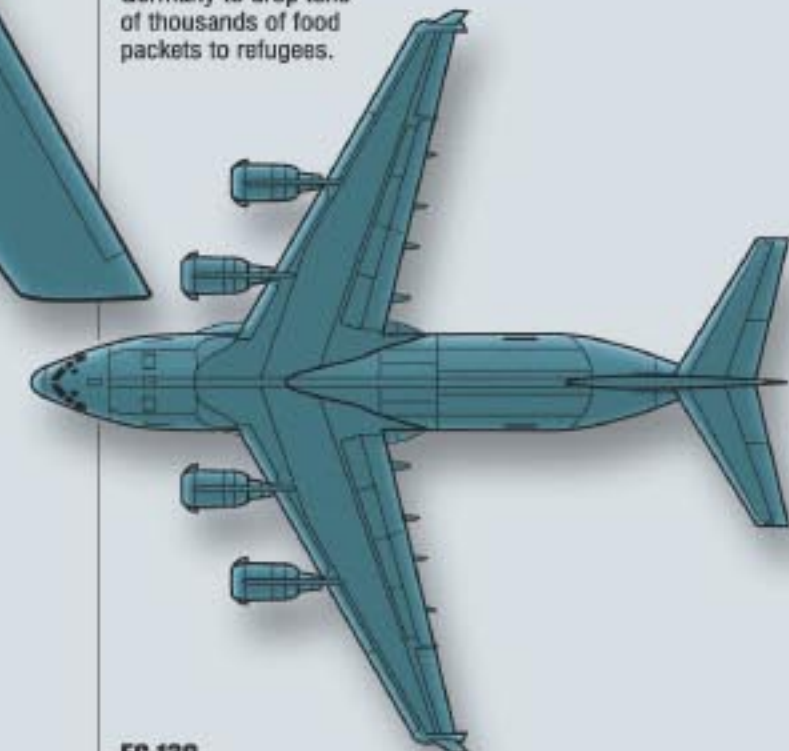


## FOLLOW-UP

After the first round of attacks, several kinds of aircraft were poised to drop humanitarian aid and wage psychological warfare.

### C-17

The cargo jets flew from Ramstein Air Base in Germany to drop tens of thousands of food packets to refugees.



### EC-130

These electronics-laden craft are capable of making radio broadcasts into Afghanistan.



Sources: Federation of American Scientists, Jane's All the World's Aircraft, U.S. Defense Department  
GRAPHIC BY ROB CODY AND ROB LITTLE—USMAP  
REPORTING BY MARK MAZZETTI—LONDON