

NASA'S

A partnership conceived for diplomatic—not scientific—purposes is hindering space

RUSSIAN

research while putting U.S. tax dollars into the pockets of corrupt Russians.

PAYLOAD

JAMES OBERG

ho told you about those houses?" the Russian asked me.

Taken aback, I could only say, "People I trust."

"Well, trust me," he replied, speaking very carefully. "It—is—dangerous—for you—to write—about—this subject. You know about the Russian mafia? It is dangerous for you to write about these houses." He then walked off.

The man, a high official in his country's space program, had approached me inside the employee cafeteria at the NASA Johnson Space Center in Houston, Texas. It was early 1995, just before the first visit of an American astronaut to the *Mir* space station. A few months earlier, the *Washington Times* had published one of my articles on the Russian-American space partnership. Along with my descriptions of the poor treatment of Americans in Russia, and of NASA's poor knowledge of the Russian space industry, I had reported that

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vast amounts of Western money meant for the space program appeared to be winding up in the pockets of top officials, while ordinary workers were severely underpaid, often months late. In particular, I had mentioned the half-million-dollar mansions for top officials at Star City, the cosmonaut training center near Moscow. Reportedly hooked directly into the heating and electrical power net of the cosmonaut center, these houses were being built only half a mile from the main entrance road to the base. They were far too expensive for the salaries of the officials involved.

Now, unsure whether this official's message was a threat or a friendly warning, I reported the encounter to NASA security. I never saw any results. The joint space program continued, and in Moscow the construction continued of the so-called "cottages" of the "big cones" (Russian for "big wigs").

Two years after my ambush, by which time I had published another article on the subject illustrated with a photograph of some of the mansions, the tables were turned on the Russians. TV newsman Byron Harris of the ABC affiliate KFAA in Dallas,

Texas, had seen my articles and set off on his own investigations. He had been to Moscow and had found a way to visit and videotape the still-growing complex of space industry mansions.

When one of the mansion-owning officials, General Yuri Glazkov, visited Texas in early 1997, Harris was ready. Using their proper press credentials, the reporter and his camera crew entered the Johnson Space Center and lingered outside of administrative headquarters, where Harris had learned that Glazkov was headed for

a meeting. As the Russian and his interpreter approached, Harris asked him about the funding for the costly dwellings.

"There are no such houses at Star City," Glazkov answered through his interpreter. Shown stills from the video, he kept up his bluff: "I don't know anything about it; I don't live there." Confronted with the claim that he did, and that one particular house was in fact his, he changed tack: "This has nothing to do with the space program, and I don't want to talk about it." Harris asked where he had gotten the money. "My wife is a pilot, and we have saved up all our lives for this," Glazkov explained, walking off.

Of course, any money saved by Glazkov and his wife had been wiped out by the hyper-inflation upon the collapse of the USSR. His official salary was far out of proportion to the value of the house in question.

NASA's reaction was telling: It immediately clamped down on the U.S. news media. Highly restrictive new badging procedures were immediately implemented for journalists, to make sure no visiting Russian space official ever had to go through such an ordeal again. When Harris's report appeared on "Nightline" a few months later, a NASA spokeswoman gave the agency's official position on the mansions: "What Russia does with their own money is none of our business." Pressed as to how she knew this was really Russia's own money, and not diverted assets from Western-funded programs (as is commonly believed by workers at Star City, foreign and Russian alike), the official admitted she had no idea.

The scandal of the Star City mansions and NASA's non-response to it perfectly characterize the U.S.-Russian space partnership. From the beginning, the program has stumbled over the issue of money—how much the Russians will get, where (and to whom) it will go, and how much will actually be spent on the promised services. By 1998, the five-year-old partnership had seen the transfer of more than \$2 billion of American money (some from NASA but most from commercial enterprises) into the Russian aerospace industry, where most of it vanished utterly without a trace.

Only now is the American public catching on to the costs of Russian delays, diversions of space resources to the military, and

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widespread corruption—all of which the Clinton administration has covered up for the sake of its foreign policy, with the complicity of the NASA hierarchy. It is still not widely known how, just five years ago, the Russians came to be given a controlling share of the multi-modular space station, and in effect, veto power over an entire project dependent on their vehicles. As with so many other cases of government mismanagement, to trace the storyline of this folly it is necessary to follow the money.

ORIGINS OF THE PARTNERSHIP

The idea of using the Russians to assist American space operations sprang naturally from the collapse of the Soviet Union in 1991. As NASA struggled with an out-of-control design for its grandiose *Freedom* space station, many experts looked longingly at Russia's decades-long experience with its own series of small space stations.

In 1992, President Bush mentioned the possibility of space cooperation in written testimony to Congress. House space subcommittee staffers urged their White House contacts to offer expanded cooperation to the Russians as a reward for political and economic reforms. One agreement called for exchanging astronauts and cosmonauts in orbit. That same year, Congress directed NASA to evaluate using the *Mir* space station (launched in 1986 for a five-year mission) as a base for American experiments. The resulting evaluation described an aging space structure prone to breakdowns, noise, and vibration, starved for power, and totally inadequate to host any visits by U.S. spacecraft. NASA's experts recommended against any use of *Mir* for U.S. purposes. But there were other factors, besides mere technology, to be considered in such a decision.

In the early days of the Clinton administration, with political support for the troubled *Freedom* project plummeting, NASA faced devastating budget cuts. The Russians' space program, too, was facing bankruptcy; and their plans for a *Mir-2* space station were also threatened. In March of 1993, Russian space officials proposed a solution to this common crisis: merging their *Mir-2* program with the *Freedom*, which they claimed could save billions of dollars for both nations. Lame-duck NASA Administrator Dan Goldin, reportedly fearing replacement at any moment by some "Friend of Bill," responded with enthusiasm. Over the next two weeks, on Goldin's initiative, officials at NASA, the White House, State, Defense, and Commerce developed a plan for the U.S. to invite Russia into the space station redesign effort, even though it had been Russia's idea. Tony Lake, the president's national security adviser, endorsed this suggestion on April 1, 1993, and that same day officials presented it to the president

and vice president, who were about to meet Boris Yeltsin for the first time. Three days later, at the Vancouver Summit, Clinton and Yeltsin agreed to the proposal, and officials in both countries were told to “make it happen.” In Russia, the former defense industry council that ran the space program had recently been dissolved, and its function assigned to a new civilian group called the Russian Space Agency (RSA), deliberately modeled on NASA to facilitate cooperation with the United States.

America’s top space official promoted the arrangement, pointing to benefits that transcended science. “There is no event that can better define the coming of the new age than we joining with Russia and actually investing in technology instead of building weapons,” Goldin told the *New York Times* in January 1994. He painted a grim alternative: “If we don’t do this together, then Russia goes its own way and we go our own way.” A few months later, at an aerospace forum, Goldin argued that withdrawal of U.S. support for the Russian role in the International Space Station (ISS) would play into the hands of “radical right-wing Russian space industry” officials opposed to Yeltsin’s reforms. “We could back away... and we could give the nationalists a self-fulfilling prophecy that will be a disaster to this world—or we can choose to try and support the flicker of democracy in Russia.” Shortly thereafter Goldin made the same point in more positive terms: “While there are tangible benefits to Russian cooperation, auditors cannot put a price tag on the intangible benefits of international cooperation. It’s good foreign policy, and it’s good space policy. The Cold War is over, and cooperation with the Russians demonstrates that former adversaries can join forces in a peaceful pursuit which will generate tremendous benefits for both nations.”

The president himself had become enthusiastic about cooperation with the Russians. On April 20, 1994, Skip Johns, associate director for technology in the White House Office of Science and Technology Policy, speaking at a meeting of the Commercial Space Transportation Advisory Committee, touted the president’s support for the ISS: “I’m looking at a memo of just a couple days ago and he scratched a note on it relative to the station and Russian participation and his comment is, ‘Great. [Russian participation] should help us sell it.’”

The formal 700-page U.S.-Russia space contract was signed in June of 1994 at a White House ceremony symbolizing the Clinton administration’s desire to take credit for it. Said Vice President Gore: “After years of competition in space, which symbolized the rivalry between our nations, we have now found a common destiny in cooperation and partnership, a cooperation in space which symbolizes the cooperation we are building here on Earth.”

“There are important real benefits for each country,” he later added, “in terms of bridges of understanding that develop when we work toward common goals.”

And NASA’s Goldin went along with pretending the Russian partnership had been Clinton’s idea all along. “Let me start by saying that this is a presidential decision and presidential policy,” he told Congress on April 13, 1994, “and it is viewed to be in the interest of the United States Government to do this in the broader sense.”

By this time, and considering such rhetoric, outside observers had developed a good idea about the actual purposes of the Russian space partnership. The *Wall Street Journal* noted that “Washington’s decision to conclude an agreement with the Russians to implement a project to create an orbital station is the basis of an ambitious and risky strategy aimed at consolidating Russia’s orientation toward reforms after the U.S. and Western pattern by establishing ties with its military, scientific, and industrial elite.” In *Space News*, Andrew Lawler reported that a NASA source told him, “We are just a pawn of the State Department,” and that American diplomats were more concerned with political benefits than technical merits.

JUSTIFYING THE COSTS

Not everyone at NASA shared Goldin’s enthusiasm for the Russian partnership. On August 27, 1993, the chief of Mission Operations in Houston, Gene Kranz (the charismatic hero of the Apollo-13 crisis), sent a memo to Washington describing significant safety issues “of particular concern” to his team. “Agreements established without addressing these issues would be premature,” he warned, “and could present problems during future negotiations, or result in a configuration that is complex to assemble and costly to operate.” The warning was brushed aside, and within months Kranz was out of a job—a lesson not lost on other officials at NASA.

The Russians wanted to be treated as full partners, but they also insisted on being paid as contractors. It was agreed that they would host a series of practice space shuttle dockings to their *Mir* space station, where a few American astronauts would stay for months-long expeditions, and that NASA would pay for this service. These payments were based not on any serious cost-benefit analysis, but on considerations of foreign policy. Contemporary events suggest what the rationale was.

In July 1993, Russia became one of five states (including China) in the Missile Technology Control Regime (MTCR), intended to prevent the spread of missile technology to Third World nations, and agreed to stop exporting cryogenic manufacturing technology to India. Defense, State, and even Commerce Department officials, worried that India might be using hydrogen-fueled rocket engines in building surface-to-surface military missiles, had lobbied for two years against Russia’s sale of the enabling technology. But the United States had had no leverage with Russia until the space partnership emerged.

It was the Russians who told the White House that the Indian deal would have resulted in their making several hundred million dollars profit (other observers considered that number highly inflated). And by mid-1993 the directive was clear: the U.S. must find an alternative space agreement with Russia that will be worth the same amount to them.

U.S. diplomats insisted there was no link between Russia’s cancellation of the India deal and its acceptance of a U.S. space deal with an equal dollar value, though they did admit that “things came together conveniently.” But many outside experts assumed that the linkage was direct. The price tag of \$400 million for the

Mir visits alone was otherwise inexplicable. Russian officials valued the Indian deal at about the same amount.

On top of this \$400 million was another \$200 million to pay for the first Russian-built space station module, the “FCB,” in return for the right to call it an “American launch.” (Nonetheless, NASA recently acceded to Russian insistence that this “American launch” be renamed *Zarya*, after a classic Soviet space vehicle.) Miscellaneous hardware purchases and extension of the *Mir* visits added another \$100 million in U.S. payments, bringing the total NASA cash transfer to Russia to \$700 million.

“We knew the administration wanted to send money to Russia,” retired NASA official (and former astronaut) Bryan O’Connor told me not long ago, “but not just as sending dollars. We wanted to get something out of it. But at that time, they were going to send the money anyway.” Once the actual figure was set, the next step was to get enough services from Russia to make the price seem justified.

Ironically, other efforts to justify the cost of the program only made it more expensive. A prime instance was the excessive number of shuttle-*Mir* dockings prior to assembly of the space station. Says O’Connor, who played a leading role in those negotiations, “Our conclusion was that we could do everything we needed in four flights.” But while traveling from Washington to Moscow in late 1993, NASA administrator Goldin told his staff to make it ten flights. “We were completely baffled,” recalls O’Connor. “We had to cross out all the numbers on our charts and replace them with the new ones. I didn’t know where that idea came from.”

The Russians, too, were amazed by the change. “They had worked out the logistics for four flights, and suddenly we told them we wanted to have people on board for two years,” O’Connor recalls. “They asked us what was happening to all the science missions that these flights would replace. They asked us why we were trashing our science program to dock again and again and again with *Mir*.” If six more shuttle launches were diverted to docking with *Mir*, their original science payloads would have to be canceled. “The Russians thought very highly of the science we were getting from the Spacelab flights, they had the highest praise for it.... They were just drooling to get on board.”

Yet the extra science missions were canceled in favor of repetitive dockings (at least seven and “up to ten,” in the official announcement). If NASA was going to pay the Russians \$400 million, they evidently wanted it to look like they were getting \$400 million worth of dockings, even if they had to cut the shuttle science flight program in half to do it.

NASA’s claim that the Russian partnership would make the International Space Station cheaper and faster to build was based on the assumption that the Russians would provide certain modules that NASA would otherwise have to build and pay for. These included equipment for propulsion and attitude control, for life support inside the station, and for a spacecraft capable of evacuating the crew when the space shuttle wasn’t docked. In NASA’s estimate, the net savings in construction and assembly costs came to \$2 billion. Almost all non-NASA specialists rejected these claims. “I have yet to see a joint international program that saves any money,” noted aerospace industry leader Norman

Augustine. By June 1994, the Government Accounting Office had written: “Most of the savings from Russian participation comes from an optimistic schedule that may not hold up. If the schedule slips, any savings will quickly evaporate.” As time would tell, this outside advice was right on target, but at the time NASA and the White House refused to consider it.

NASA’s Goldin responded to the GAO report in a statement issued June 24: “The fact is every nickel is accounted for in the NASA budget, and Russian cooperation will not cost the U.S. taxpayer one penny more—in fact I believe it will save us billions.” Barry Toiv, then a spokesman for the White House’s Office of Management and Budget, agreed: “We are confident in our estimate” of savings due to Russian participation, Toiv said in the *Houston Chronicle*.

The books were obviously cooked. One crucial gimmick was not counting space shuttle missions in the cost of the space station. NASA officials say this is legitimate since the shuttle flights, which come from another part of their budget, would have occurred anyway. But in that case, operational costs would have been charged to another program, whose cancellation to fly *Mir* missions was one more hidden cost of the Russian partnership. Omitting the shuttle costs also made possible the biggest budget deception of the ISS program: hiding the expense of changing the station’s orbit.

GOING OUT OF OUR WAY

Original plans called for the *Freedom* station to be carried up in pieces by shuttles launching due east from Cape Canaveral, taking full advantage of the eastward rotation of the Earth. The station’s orbit would consequently range between 28 degrees North and 28 degrees South latitude (i.e., an “orbital inclination” to the equator of 28 degrees).

The Russians, with their far northerly rocket bases, simply could not reach this orbital path due to esoteric but immutable laws of celestial mechanics; their missions circled the Earth with a much steeper north-south range of 52 degrees. So in order to allow the Russians access to the new space station, NASA shifted its planned orbit northward.

This caused a number of operational difficulties, since NASA engineers had based their designs for the station on the low-inclination orbit. Many parts of the station could easily overheat or freeze in the new orbit. Even worse, shuttles heading for the station no longer could fly due east from Florida, but instead had to head off toward the northeast, losing much of the boost from Earth’s eastward spin. Because of this, the shuttle’s payload carrying capability fell by one-third. NASA implemented a number of design changes to increase the shuttle’s payload, but since these would have been possible no matter which orbit was aimed for, there remained a one-third penalty for the Russian-compatible flight plan.

It’s easy to tally up the cost of doing it the Russians’ way. Over the planned 20-year life of the ISS, NASA expects to fly about 120 shuttle missions to it. About 40 of these will be needed merely to match the amount of cargo that the first 80 would have been able to carry into the old west-to-east orbit. At an esti-

mated half a billion dollars per flight, taking the Russians into the partnership will cost \$20 billion. Yet not a penny of this appears in NASA's official space station budget.

The change in orbital inclination had been a feature of the original Russian merger proposal of March 1993, but NASA officials had not drawn attention to it and Congress was caught by surprise months later. "The controversial thing was not the docking program," recalled Nick Fuhrman, then an aide to the House Subcommittee

on Space. "The controversial thing was changing the orbital inclination of the space station." NASA assured Congress that the penalties for the change would be entirely offset by developing more efficient shuttle launch hardware.

NASA justified the new orbit by pointing out that it allowed observation of more of Earth's surface (even though the agency had earlier rejected all proposals to do Earth observation research from its space station). The argument was clearly designed with one target in mind: Vice President Gore. "That was a cheap and unfair trick by NASA," recalls Nick Fuhrman, "taking advantage of Gore's well-known environmental inclinations." Gore uncritically accepted this rationale for the awkward northern orbit, but as it turns out, NASA has not funded any significant scientific research for the space station except a small instrument for watching sunrises and sunsets—which could just as easily have been hooked to an unmanned satellite.

Congress also objected to a station design that allocated critical modules to the Russians, with no backup systems on the U.S. side. Although it was the main basis for the promised cost savings, this dependency worried many members of Congress—on both sides of the aisle.

Democratic Senator Barbara Mikulski told Goldin that Russia's role should be "enhancing" but not "enabling." Rep. James Sensenbrenner, the Republican chairman of the House Science Committee, developed "critical path" terminology to argue that successful completion of the design should not depend on Russian hardware.

In repeated testimony before Congress, NASA agreed not to put Russia on the critical path, then proceeded to do exactly that. In June 1994, President Clinton assured Congress in writing that the agency would "maintain in-line autonomous U.S. life support capability during all stages of Station assembly." NASA did studies of alternate billion-dollar replacement modules, but when it actually tried them in 1997, all the highly touted contingency plans turned out to be useless. For years, NASA had promised it had workable alternative plans for Space Station assembly and operations, in case the Russians reneged on

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their promises. This was a charade. Seeing that the White House was committed to keeping the Russians aboard at any price, NASA officials never seriously considered any other possibility.

THE BILL COMES DUE

As envisioned in early 1994, before the signing of the partnership agreement, the Russians' contribution would be extensive. They would build the ISS's first module, the FGB (a Russian abbreviation for "Functional Cargo Block"), under contract to

NASA's station contractor, Boeing. They would finance and build the second module, called the "Service Module," based on their own embryonic *Mir-2* module, to carry the station's life-support and space-maneuvering systems. They would deliver a string of *Soyuz* manned space capsules to provide emergency-landing capabilities for the station crew; and they would develop a heavy robot supply ship called the *Progress-M2*, twice the size of existing models, for frequent logistics missions. Follow-on modules would provide more laboratory, power, and operational capabilities. On paper, it was an impressive collection of hardware, and it looked like a bargain—if the Russian promises were to be believed.

But in late 1995 the Russians confessed to NASA that many of their initial promises simply could not be fulfilled. They had no money for the Service Module or any of the follow-on modules, and the proposed heavy supply ship *Progress-M2* turned out to be only a designer's fantasy. Although NASA publicly continued to express confidence in its Russian partners, in private NASA knew better, conducting contingency studies to anticipate Service Module delays of up to 24 months.

In private briefings for employees at NASA, managers passed on the news: "The plan is to let the Russians out of most of their promises," one manager began, according to notes from a listener. NASA workers were told that the White House had directed NASA *not* to consider an "all U.S." version with new modules; such a design was "politically unacceptable to the administration." Further, despite the growing evidence for their unreliability, the Russians must be kept in the critical path "to support U.S. diplomatic goals," the NASA official continued.

To preserve the partnership, NASA agreed to shoulder significant new burdens, including two extra shuttle flights to carry up sections of a Russian-built module called the Science Power Platform, which Russia couldn't afford to launch on its own (a billion-dollar expense for the U.S.). NASA would pay the Russians to redesign their *Soyuz* space capsule so that taller astronauts could fit in it (only half of the American astronauts were short enough to use the capsule). Plans for a joint space suit were canceled and the old U.S. shuttle suit had to under-

go major (and expensive) modifications.

NASA also agreed to pay Russia for two additional *Mir* visits, during which the shuttle would deliver enough supplies to relieve "a significant logistics shortfall" (in Goldin's words). In exchange for this expansion of the original contract (and the infusion of much-needed American cash), the Russians made a series of new promises: They would keep on schedule for their own modules, especially the FGB and the Service Module (April 1998 was the goal). They would develop a new heavy-class robot supply vehicle to support the new station.

NASA also had to sacrifice some other high-utility plans. It was going to mount an experimental high-efficiency solar power module on *Mir* at the end of its manned operations, so that the unit could be flight-tested for eventual use on the ISS. With the extension of *Mir* manned operations, this opportunity for a useful joint experiment evaporated. But it was no loss, since despite all the costs allegedly "saved" through the partnership, NASA found that it was running short of money and could no longer afford to develop the new "solar dynamic" system. Then the promised new heavy supply ship fell into a black hole and vanished, while Russia told NASA that it could not on its own afford to build enough smaller old-style supply ships. Recently, after more delays in funding their promised contributions to the International Space Station, Russian officials even claimed they didn't have enough money to safely dispose of the 120-ton *Mir* space complex.

Eventually the Russians also began to acknowledge the out-of-control corruption within their space industry. In April of 1997, at a briefing by the economic crimes unit of Moscow's Internal Affairs Main Administration, specialist Timur Valiulin described a wide-scale pattern of top-level corruption in the aerospace industry. He singled out the Lavochkin Bureau, where the *Mars-96* probe had been built (it crashed in November of 1996 after tens of millions of dollars of European investment), and described how the bureau's general director and one senior associate had been arrested for embezzlement prior to the probe's crash. He called the case "merely an individual fact in a series of such outrages." Shortly afterwards, the Russian government fired Oleg Soskovets, since 1993 the point man for negotiating the U.S.-Russian space partnership, based on accusations of massive personal corruption.

Fuhrman, the former House Space Subcommittee aide, recalls congressmen's frustration upon suddenly discovering that the Russian Space Agency was bankrupt, despite \$100 million in NASA funds flowing into the RSA's New York bank account every year. Science Committee chairman Sensen-

Russian reconnaissance, early-warning, and military communications satellites can be launched reliably from the same launching pads refurbished by U.S. money. American rocket engineers have helped clear the way for resumed commercial and military Russian space launchings.

brenner himself had tried to find out where the money was going, but the Clinton administration sided with the Russians. "The White House told us not to interfere in the internal workings of foreign governments," Fuhrman said. The administration thus echoed the comments made by the NASA spokeswoman when confronted with the evidence of massive space industry corruption: "What Russia does with their own money is none of our business."

THE COMMERCIAL ANGLE

The Russians obtained money not only from the U.S. government, but from U.S. businesses as well. Under protective cover of the government-to-government agreements in early 1993, a number of commercial space cooperative programs were also launched. Several different American aerospace corporations signed agreements with Russian space factories to market Russian rockets to launch Western satellites. Other deals saw the Russians selling their rocket engine designs to be incorporated in upgraded American launch vehicles.

The same Gore-Chernomyrdin Commission that had been inaugurated at the April 1993 Vancouver Summit to oversee government space cooperation was also in charge of commercial ventures. Although at first the U.S. insisted on a fairly restrictive quota for sales of Russian rockets, American space companies soon lost their fear of Russian competition and jumped on the bandwagon. This was partly due to the U.S. demand that the Russians not undercut "world market prices" for launch services by more than 15 percent. Given the far lower operational costs within Russia (the result of low salaries and mass production) this meant that a torrent of extra Western overpayments would begin pouring into the Russian space industry and their Western industrial partners.

By the time of the first Russian commercial satellite launch in April of 1996, the cash flow from abroad already accounted for about 40 percent of the actual funds received by the Russian Space Agency, up from 20 percent the year before. And by 1997, the Russians were annually raking in more than \$600 million (some sources say \$800 million) in Western commercial contracts, accounting for two-thirds of the entire cash flow into the space industry. Russian officials realistically expect that flow to reach a billion dollars per year within two years.

This influx has largely restored many key components of the Russian space infrastructure, which had been deteriorating in the immediate post-Soviet years. Visitors to Russia's

"Baykonur Cosmodrome" in newly independent Kazakhstan report on how tens of millions of dollars of commercial launch funds have totally rebuilt the payload processing and fueling facilities, as well as the equipment at launch pads and control bunkers. Totally new state-of-the-art communications links have been installed, and an entire airport has been upgraded to all-weather 24-hour capability, to support transfer of personnel and payloads.

While certainly convenient for Western customers, these upgrades have proved crucial to Russian military space programs which use the very same facilities. Military units paid as subcontractors for commercial launch support are thus also available to perform parallel military duties without having to appear on Russia's military budget. Advanced Russian reconnaissance, early-warning, and military communications satellites can be launched reliably from the same launching pads refurbished by U.S. money. And when rocket problems occur—such as the failure of a *Zenit* booster with a spy satellite in May of 1997, which threatened some commercial flights planned for later this year—American rocket engineers have taken part in the accident investigations. According to *Aviation Week*, they have provided crucial insights into solving and fixing some of these technical problems to clear the way for resumed commercial and military Russian space launchings.

KEEPING THE RUSSIANS OUT OF TROUBLE?

By saving the Russian space industry from collapse, Western money—both from NASA and from the private sector—was supposed to keep otherwise-unemployed Russian rocket experts from assisting weapons development programs in rogue states around the world.

An example of what's really happening is the Energiya Rocket and Space Corporation, which builds and operates Russia's manned space vehicles and thus will play a crucial role in the International Space Station. The corporation privatized in 1994, with the government owning 51 percent of the stock (now down to 38 percent). Its 1997 commercial earnings were placed at \$350 million. That broke down to:

- \$160 million for foreign guests aboard *Mir*, mainly NASA, with some French payments.
- \$100 million for sales of Space Station hardware, some paid by NASA and some still owed by the Russian Space Agency.
- \$50 million from investment in "Sea Launch," a plan with Boeing to launch a Ukrainian-Russian rocket from a ship in the Pacific Ocean.
- \$20 million in sales of a commercial third stage used on "Proton" rockets for Western satellites.
- \$20 million in sales of the *Yamal* communications satellite to a Russian bank.

Yet during the last ten years, Energiya has laid off more than 40,000 space workers, and it pays the remaining 22,000 engineers and technicians less than generously.

One senior manager at the company recently told me how he has to pay the 200 workers in his section. "They give me a pile of cash for the payroll," he began. "I count it and

sign for it, and it's never enough." The money is intended for back pay, often months in arrears, and the pay rate—perhaps \$200 per month—is half of what taxi drivers earn. "I then must call in each of my employees one at a time," the official continues, "and we negotiate over how much money they really need to get by in the next two weeks." Sometimes he has money left over at the end, sometimes he runs out before everyone is paid. Little wonder, then, that despite the Western money there are still thousands of Russian former rocket scientists looking for more reliable sources of income. On May 25, *Newsweek* reported on the findings of Yevgeniya Albats, a highly respected Russian journalist and an expert on where Soviet-era KGB and military officials have wound up. She had talked to several former rocket workers who had secretly been to Iran to work on its missile program, and one told her of receiving envelopes of badly needed cash prior to making the trip.

WHO ULTIMATELY LOSES?

So what has following the money revealed so far? First, the Russian proposal to combine the U.S. and Russian space station projects was accepted enthusiastically by American space officials anxious to keep their jobs in the new Clinton administration and shrewd enough to know that it would appeal to the ideological biases of Clinton and (especially) Gore.

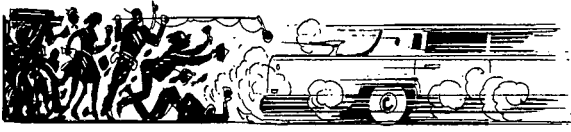
Second, the alleged practical justifications for the partnership—that it would save money and time—were ludicrous from the start. Now the GAO estimates that space station delays are costing U.S. taxpayers at least \$100 million per month.

Third, the strategic justification that the partnership would keep the Russian space industry intact and prevent an army of unemployed Russian scientists from going to work building missiles for rogue states has proved illusory as well. Even by official Russian figures, hundreds of thousands of Russian space workers have been laid off.

Fourth, the partnership has preserved the Russian space industry from total collapse and has enhanced both Russian civil and military space capabilities. What has recently been discovered about the U.S. space cooperation with China may be only a sideshow to Russia.

Finally, the tidal wave of American dollars into the Russian space industry—more than \$2 billion to date—has had the same corrupting effect that Western money has had elsewhere on the post-Soviet Russian economy. (Another case involves \$100's of millions paid by Germany to house former occupying troops withdrawn to Russia. The money's misappropriation has led to several trials.) As most of it disappears (presumably diverted into private bank accounts), some current apparatchiks and officials become "bought friends" of the United States, but many thousands more come to feel insulted and resentful.

The Russians have a pungent proverb that describes this arrangement. It's like pissing in your boot to warm your toes on a cold day. After the first brief flush of warmth and comfort, you realize you're worse off than before. And it stinks. ❧



Hooligans of Leisure

British society has traded class for cash.

Pat Buchanan is an engaging fellow, but he was never more wrong than in his observation, apropos immigration a few years back, that obviously America would find it easier to assimilate a hundred thousand Englishmen than a hundred thousand Zulus. The Zulus have mostly given up their traditional practices of disemboweling and genital-severing, and I feel sure that, were a hundred thousand of them to turn up in, say, a small town in northern Maine, the locals would have little trouble, at least after the select board's polite request that they tone down the tribal dancing or save it for the Fourth of July parade. On the other hand, were a hundred thousand Englishmen to move in, well, there goes the neighborhood. As I understand it, Pat's a protectionist in the economic sense; with a hundred thousand Englishmen next door, he'd soon be a protectionist in the "Quick, wedge the armoire against the front door" sense. My advice to him would be to head for the hills, especially since many of the English seem to have become belated converts to some of the Zulus' more robust tribal customs.

Possibly these are not the kind of English Pat had in mind. Possibly he was thinking of John Steed and Mrs. Peel, the two heroes of this summer's revival of *The Avengers*, thwarting evil madmen bent on world domination with little more than a bowler hat, a brolly-cum-sword-stick, effortless style, exquisite manners, and afternoon tea. It is the enduring image of Englishness, ageless, indestructible.

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This image somehow survives in America's collective consciousness despite all the evidence to the contrary. Hardly any British stories make the network news these days, but on the rare occasions they do, what are they? These past few weeks, there've been two: the homecoming of the sullen, whey-faced killer nanny Louise Woodward; and the rampage of England soccer fans against Tunisian supporters at the World Cup in France. It would be hard to find two less attractive advertisements for the benefits of stable democratic constitutional evolution. The Iranian team may have promised a "holy war" against the Americans, but compared to the English, they're pussycats.

When blacks in Los Angeles launch one of their periodic looting spree, they at least pay lip service to the notion that it's because of some ongoing festering social injustice. Not the English lads in Marseilles. Passing a glass-fronted restaurant off the Quai des Belges, they smashed the windows, sent the bourgeois French diners fleeing from their tables, and scattered chairs, plates, and bottles across the street, all for no reason other than that which impelled Sir Edmund Hillary to climb Everest on the eve of the Queen's coronation: "Because it's there." Insofar as there are any coherent motives for the carnage, it would seem to be that Johnny Foreigner is insufficiently grateful: As the lads like to chant when they're stomping through hapless Continental towns, "If it weren't for the English, you'd be Krauts!" It would be a brave scholar who pointed out that, strictly speaking, if it weren't for the Americans and the Canadians and Indians and Australians—not to mention the Soviets—the English would be

Krauts, and speaking fluent German, instead of the Neanderthal demotic with which they menace their enemies. If you're a Tunisian or Italian or Belgian, with a competent mastery of the Queen's English, the snarls and grunts issuing from the England fans in between head-butts must be mystifying. What, for a start, is this country they claim to represent? Not "Eng-land" but "In-ger-land! In-ger-land!! In-ger-land!!!" (Repeat until knife fight.)

Their other great battle cry is "'Ere we go! 'Ere we go!! 'Ere we go!!!" This was the ditty with which the In-ger-lish chose to regale French drivers as they clambered onto cars waiting at the traffic lights in Marseilles and began stamping on the roofs. Americans may be interested to know that this lyric is sung to the tune of Sousa's "Stars And Stripes Forever." Indeed, in one of the more curious tributes to the potency of the Anglo-American relationship, almost all the most revolting manifestations of English nationalism now depend on American pop culture. Thus, to welcome Louise Woodward home, the burghers of Elton tied their yellow ribbons, not round the old oak tree, for sadly most of those have been killed off by the smokestack emissions, but instead round the bollards and "No Parking" signs. At the Rigger pub, operational HQ of the "Free Louise" campaign, they roared out the movement's theme song, "You'll Never Walk Alone"—also a great favorite of soccer fans. Even as they castigated the ghastliness of American culture, Louise's defenders were utterly dependent on it. It is, in its way, very telling, if only of the weird ersatz quality of contemporary English life. There are, to be sure, local variations on these imported Americanisms—as there were in the week after the Princess of Wales's death when, according to U.S. news shows, the British people embraced full-blown touchy-feely