

Technical Issues

The technical difficulties connected with the telelink were very few when compared to the difficulties in communication between the two groups. The UCSD Media Center is not equipped with "broadcast quality" cameras and the campus facility with the high quality equipment had previously been booked for the day of the telelink. An immediate decision was made to rent production facilities. Western Video was contacted and a reservation was made to rent their remote production van. Western Video's crew chief, Earl Hatten, and Media Center chief engineer, Jim Smith, met to plan the interconnection of the media center video equipment with the remote van. With careful coordination, the Media Center's 3/4 inch video tape recorders with time base correctors were set up to feed the van's switcher. These VTRs would play the prerecorded tapes for the satellite linkup.

Various studio sites were considered but the final choice was a recital hall used primarily by the music department. The hall was equipped with a lighting grid and dimmers, but had inadequate lighting instruments. It took lighting director, Martin Lopez, and his two assistants one very long day to hang and focus over 50 lights. Large numbers of lights were used because the entire hall was lit as a performance area.

At the same time the crew from Bonneville Satellite was setting up their five-meter portable satellite receiver. Bonneville's Director of Operations, John Hathaway, had booked the bidirectional path through five different satellites. The signal was sent via Pacific Telephone microwave to the Bonneville uplink eight miles away. From the uplink the signal was sent to Westar V and returned to the receiver at Edam, West Virginia. The Soviet bound signal was then switched to the Intelsat uplink in New York. Intelsat delivered the signal via their midatlantic satellite to the Soviet earth station in Dubna where our NTSC video was scan converted the SECAM system.

The return path, due to scheduling problems, required an extra satellite. The Soviets transmitted their SECAM signal through one of their satellites to the earth station in Raisting, West Germany. In Raisting the signal was scan converted to NTSC video and retransmitted to an Intelsat satellite. The Intelsat earth station at Andover, Maine, received this signal and sent it by microwave to the Comsat uplink in Edam, West Virginia. Comsat relayed the signal through Westar IV to Bonneville's portable receiver set up 50 feet from our make-shift studio. The total signal path through the five satellites was over 220,000 miles. Travelling at the speed of light the signal required 1.2 seconds to complete the loop.

At 4:00 a.m. on July 20th, the Media Center staff started their final check out of their equipment. At 5:00 a.m. the remote van arrived; by 6:45 the setup was ready for final checks. Shortly after 8:00 a.m. the portable downlink was receiving Westar V and the local uplink had our microwave. The knowledge that our equipment worked was only a slight relief at that time.

By 10:00 the telephone company did not have our four wire coordination circuit working and a call was placed to the studios in Moscow. The operator said she would get back to us. Time dragged very slowly until 10:27 when the Westar IV signal changed to bars and tone from Raisting, West Germany. Seconds after that the telephone operator completed the connection to the Gos-tel Studios in Moscow. Seconds passed slowly until the monitor in the van lost sync and the signal that reappeared was Vladimir Pozner. The audio was low and that information was passed to the Moscow technician. Within a few

August 11, 1983

2

seconds our Soviet counterpart confirmed the arrival of our video and audio. A short, collective sigh of relief was heard. We could now proceed with the show at hand.

ESTIMATED EXPENSES FOR
MOSCOW - SAN DIEGO TELELINK
ON CHILDREN & FILM

SATELLITE COSTS

SAN DIEGO TO MOSCOW

Telco link to Bonneville.....	\$ 2272.80
Bonneville uplink.....	\$ 156.25*
Domestic satellite.....	\$ 412.50*
Edam downlink.....	\$ 180.00*
Connect and switch in New York.....	\$ 13.44*
New York to Moscow (paid by Soviets).....	\$ 0.00

MOSCOW TO SAN DIEGO

Lvov uplink.....	\$ 3133.18
Raistings downlink.....	\$ 1867.80**
Raistings uplink.....	\$ 1867.80**
Andover Me. downlink.....	\$ 1890.00**
Connect and switch in New York.....	\$ 13.44
New York uplink.....	\$ 180.00
Domestic satellite.....	\$ 594.00
Portable downlink receiver.....	\$ 1000.00

SUB TOTAL \$13581.21

*RECOVER FROM SOVIETS \$ -762.19

TOTAL \$12819.20

**NOTE: For future broadcasts, these charges should be omitted. According to our official plan, we would have accomplished the uplink in the USSR through Dubna, then proceeded directly through Intelsat to a downlink in New York. The Dubna uplink would have cost approximately the same as the Lvov uplink, but there would not have been any Raistings charges and the N.Y. downlink would have cost approximately \$750. Total difference would then be \$4875.60. We were forced to take this more expensive route because of delays in official confirmation and information from Moscow. Intelsat would not book the cheaper route until they had a final location in Moscow; when we received this information on July 16, 1983 another party had booked the satellite time we had previously tentatively secured. Informed of this only on July 19th, our choice was to abort the entire project, thus losing over \$8000 already spent as committed or go ahead with the alternative routing through Lvov. We obviously made the choice to go through Lvov but would not need to do so in the future since more efficient means of communication have subsequently been worked out and since Moscow has not affirmed its interest in such broadcasts.

Had we not had to use the more costly satellite link total cost of all expenses would have been \$16,173.60 plus tapes.

OTHER BUDGET EXPENSES:

Rental of Equipment and Crew.....	\$ 3500.00
Rental of Auditorium.....	\$ 1000.00
Telephone Telegraph charges (approximate).....	\$ 1300.00
Extra telephone line installations.....	\$ 180.00
Travel & Accomodation expenses for participants & support staff.....	\$ 2500.00
Food.....	\$ 550.00
Supplies (set, etc.).....	\$ 300.00
Clerical support staff.....	\$ 400.00
Clerical Supplies.....	\$ 100.00
Miscellaneous.....	\$ 200.00
3/4" color video tapes (24 @ \$24/ea).....	\$ 600.00
	SUB TOTAL \$10630.00
	SATELITTE COSTS \$12819.20
	TOTAL <u>\$23449.20</u>

NOTE: Approximately \$3000 of equipment and \$3000 of free "labor" was donated free of charge.