HARDWARE

THE VIDEOSPHERE

by GENE YOUNGBLOOD

In 1948 approximately 200,000 American homes had television sets; fifteen television stations were broadcasting regularly. By 1958 some 520 stations were broadcasting to receivers in 42 million homes. Today there are tens of thousands of broadcasters and approximately 100 million homes have television sets. More than 95 per cent of American homes have TV sets today, approximately 14 million of which are color. In fact there are more TVs in U.S. homes than telephones, bathtubs or refrigerators. TV antennas bristle from the rooftops of ghetto shacks that don't even have plumbing. An estimated quarter-billion television receivers are in use around the world.

Television is the software of the Earth.

The videosphere is the *noosphere*–global organized intelligence–transformed into a perceivable state.

This implosive, self-revealing, consciousness-expanding process is irreversible. Global information is the natural enemy of local government, for it reveals the true context in which that government is operating. Global television is directly responsible for the political turmoil that is increasing around the world today. The political establishments sense this and are beginning to react. But it's too late. Television makes it impossible for governments to maintain the illusion of sovereignty and separatism which are essential for their existence. Television is one of the most revolutionary tools in the entire spectrum of technoanarchy

Television, like the computer, is a sleeping giant. But those who are beginning to use it in revolutionary new ways are very much awake. The first generation of television babies has reached maturity having watched 15,000 hours of television while completing only 10,000 hours of formal education through high school. Yet television itself still has not left the breast of commercial sponsorship. Just as cinema had imitated theater for seventy years, television has imitated cinema imitating theater for twenty years. But the new generation with its transnational interplanetary video consciousness will not tolerate the miniaturized vaudeville that is television as presently employed. We will liberate the media.

Cheap, mass-produced, personalized radar sets and house-to-house closed-circuit television broadcasting soon will be available . . .

Approximately 75 per cent of all TV homes in America are now "all channel," that is, receiving UHF as well as VHF programming. **It is estimated that 97 per cent will be all channel by 1974**. Meanwhile there are fewer than 100 communities of more than 2500 population that do not have CATV systems now operating or with applications under consideration.

. . . The FCC recently granted permission for Microwave Communications, Inc. to compete with AT&T by offering CATV systems for rent at parts of a circuit for part of a day. AT&T charges for a whole circuit 24 hours a day. The first lines were to be available between Chicago and St. Louis **by July 1970**.

. . . **a new way to transmit CATV** programs without laying down miles of cable has been developed . . . a "quasi-laser" broadcasting system with power requirements in the range of a flashlight battery. . . . the system transmits up to 15 miles and is "virtually impervious" to atmospheric conditions.

. . . the New York County Lawyers Association currently is studying the question of whether the public, as owners of the airwaves, have a right to compel TV stations to provide free CATV service since it is the clearest reception.

. . . a two-way television system that can measure audience reactions instantly via cable and computer interface.

By autumn of this year, Bell Telephone's first commercial Picturephone service will be available to the public. . . . AT&T will begin testing a variety of equipment that can read your gas and electric meters via the same lines.

. . . A laser videophone is now in operation at the headquarters of Nippon Electric Company in Japan, between buildings 300 yards apart.

. . . (Nippon Electric Company) has used lasers to transmit black-and-white television over a distance of three miles.

A laser-line telephone system that also carries black-and-white TV is now in operation in a high-rise office building in Moscow.

. . . "demand TV" or "telecommand" systems are expected by about **1978**. This system will allow an individual to telephone regional video library/switchboards, ordering programs from among thousands listed in catalogues. The programs will be transmitted immediately by cable, . . .

Two networks in Japan are now so automated that two computers in headquarters connect 26 TV stations, schedule production work on 600 to 700 shows at a time, operate master switching controls, warm up equipment, select films and tapes and put them on the air. They do much the same for 33 radio stations.

. . . "videofax" or "homofax" process of facsimile replication and distribution by which one will receive newspapers, magazines and educational documents over home facsimile receivers. Although **demonstrated as early as the 1930's** homefax systems are only now coming into commercial use. . . . the facsimile revolution challenges current FCC regulations of content of CATV programs. **Since the "content" of the facsimile system is a newspaper, present government rulings amount to an impairment of freedom of the press.**

The three major satellite networks–the Comsat/Intelsat series, the U.S. Defense Department series, and the Soviet Molniyas series– . . .

By 1972 no geographical area of the world will be without access to communications satellites.

Direct satellite-to-home TV is planned for NASA's Applications Technology Satellite-C scheduled for launch in **1974**. According to a study made for NASA by Sylvania, home TV sets could be modified to pick up the signal for $100 to $150. Spokesmen for General Electric, however, maintain that the average American TV set could be converted to direct-from-satellite reception for about $50 and (in black-and-white at least) deliver a better picture than most sets get now. Comsat claims its "local" satellite system would require no modifications of the home receiver.

Comsat officials say they can put a domestic satellite system into orbit within 24 months after receiving federal approval.

In September of 1969 the U.S. and India signed a pact which will bring direct satellite-to-village television for 5000 villages in India. Manually-operated generators in each village will provide electricity to operate one community TV set and a ten-foot dish antenna that will reach out 22,300 miles over the Indian Ocean to receive programs from two satellites. Next India hopes to have a TV satellite system that will reach directly into 560,000 villages **by 1975**, and for less than $200 million. Thus India has entered the television phase of the industrial equation considerably in advance of previous nations, having completely bypassed the ground relay stage and beginning with satellite television.

Within five years constant analysis of this planet via TV satellites will be a $2 billion industry . . . . Remote multispectral sensing capabilities of the satellites can distinguish between various types of crops such as wheat, oats, and corn, and can also provide an early-warning system for the spread of insect infestation or crop disease, lack of adequate water, livestock movements, changes in grazing patterns, in forest and water tables, and even wild animal and bird migrations may be continuously surveyed. By measuring light and heat emanations, the flows of traffic in and out of cities can be computed; patterns of human occupancy of buildings can be deduced from temperature changes–all from satellites thousands of miles above Earth.

Equipped with special high-resolution 5000-scanline cameras in a low 500-mile orbit, satellites have yielded picture resolution equivalent to 100 feet above ground. Higher resolution is possible, officials announced, but some countries would complain of "invasion of privacy."

The Nippon Electric Company of Tokyo has announced that its solid state flat TV set composed of light-emitting diodes will be released on the commercial market **next year**.

. . . it appears that flat wall TV sets will be on the commercial market **by 1978** at the latest.

It is estimated that **in 1975** your average color TV set will cost less than $50.

. . . a TV receiver only 5-½ inches thick with a 13-inch screen.

. . . a TV tube with a screen 4 x 6 feet but only one foot thick.

. . . a compact tubeless TV camera less than two cubic inches square (smaller than a man's hand) which utilizes solid-state light sensors instead of the conventional photo-cathode screen.

. . . a high-resolution TV camera less than one pound and small enough to carry in a pocket, . . .

. . . a half-dollar-size TV screen

. . . a two-dimensional laser color TV with a screen 10 x 6½ feet, composed of thousands of glass bars only two millimeters thick, . . .

. . . transistorized TV sets with rechargeable 500-hour batteries.

. . . a 200-scanline system with picture definition so sharp that it may be transferred to 35 to 70 mm film via laser for common movie theater use.

. . . "video Braille" . . . a TV camera scans an area and the picture code is transmitted to 400 solenoid stimulators on the blind person's back, where the picture is translated onto the skin through plastic-tipped vibrators.

. . . most observers estimate that TV cameras small enough to fit in a human eye socket will be developed **within the next 10 years**.

. . . television sets that translate foreign-language programs into the language of the receiver's local area . . .

By 1972 more than 200,000 low cost videotape recorders will be in use in the United States, and the video cassette image-publishing industry will be well on its way to blanketing the Earth with audio-visual information. The videosphere will alter the minds of men and the architecture of our dwellings. "There's a whole new story to be told," says video artist Scott Bartlett, "thanks to the new techniques. We must find out what we have to say because of our new technologies."

Excerpted from **THE VIDEOSPHERE** by Gene Youngblood, *copyrighted material*, to be published July, 1970, in *Show* Magazine.

Rolf-Ulrich Kaiser, at 5 Koln-Dellbruck, Bergisch Gladbacher Str., West Germany, is writing a book about the "Counter Media" in which he will have a section about videotape.

Expanded Cinema by Gene Youngblood, to be out in July by E.P. Dutton & Co.

CATV

by THEA SKLOVER

APRIL CONFERENCE IN CHICAGO

Cable television operators marched into Chicago on April 30 in order to learn about alternative software packages available for cable-casting. The meeting was planned in response to the Federal Communications Commission's rule requiring all CATV systems with over 3,500 subscribers to offer "a significant amount" of their own programming by January, 1971. At present, there are 270 systems that fall into this category.

The growth of the cable industry in recent years, which has resulted in this FCC edict, is testified to by the figures released by the National Cable Television Association, the sponsors of this convention. "There are now 2,400 community antenna systems operating in 49 states, serving 3,900 communities with an annual revenue of $300 million, employing 60,000 people and serving 4,500,000 homes. In addition to the 2,400 CATV systems that are presently in operation, as of January, 1970, about 2,100 additional communities had issued CATV permits to local operators and in 1,400 communities CATV applications were pending before local governing bodies." If all these systems were to become operational within the year there would be approximately 5,900 CATV systems operating throughout this country. The projected figures claim service in 30 million homes via 7,500 systems with an annual revenue of $3 billion by 1980. It certainly seems that this industry is well on its way to becoming a formidable component of the communications community.

Hand in hand with the programming considerations on the part of the cable operators, came concern and interest in advertising dollars. Now that the FCC has removed restrictions on the carrying of advertising commercials over the cable, the cable owners are turning their thoughts towards the potentials for advertising revenue. Concern and interest in advertisers came hand in hand with the programming considerations at the convention. Both the national advertiser as well as the "local yokel" were contemplated as sources of revenue to cover the costs of local origination. Information regarding sales promotion, marketing techniques and ratings charts were in as much demand as facts about costs of the software offerings. The cable operators were taking the plunge into that communications community formerly the exclusive property of the publisher and the broadcaster and were arming themselves with all the necessary facts and figures. They intend to become formidable competitors for that advertising dollar.

The convention was well attended, much better than anticipated, with over 230 cable system owners in attendance, including the small single system owner from Dixon, Illinois as well as the multi-system owner such as Teleprompter. In addition, many "interested parties," neither exhibitors of software materials nor cable owners made up a third group of those in attendance at the Palmer House in Chicago. This group represented a variety of interests and are a possible indication of potential alternative inputs into the industry. Amongst this group was UPI, Reuters, Ltd., The American Film Institute, Corporation for Public Broadcasting, Comsat, Dreyfus Corporation, Stanford Research of Palo Alto, Standard Rate & Data Service and some social interest types like myself.

Most of the meeting was devoted to presentations by the 24 software exhibitors. These programming choices ran the gamut of commercial fare, including old movies, re-runs of former network winners now in syndication, cartoons (lots of these, all fashionably stressing non-violence), an automated weather and news report coupled with a ticker tape, game shows