Where can you find 500 choices for entertainment? The same place you can bank, shop, vote, and play chess with your brother in Texas. Your home.

What can get you the lyrics to New York, New York and full text of Supreme Court opinions within minutes of their release? The same devices that will enable you to hold a video conference with your boss or faraway loved one.

Your fingertips.

When can you explore college campuses on both coasts or visit the Library of Congress? At the same time you can experience the sights, sounds, and feel of a Rolling Stones’ concert.

Any time you please.

Well, maybe not today exactly, but soon. The technological wonderland predicted by many is barreling around the bend, and life—at home, work, and here at Syracuse University—may never be quite the same once it reaches our doorsteps.

Within a year you may have access to hundreds of cable television stations and video versions of catalogues such as those from Victoria’s Secret and L.L. Bean. Within five years you may be able to choose your own camera angles while watching the sporting event of your choice on a flat display panel that’s far lighter than your current TV, has movie-screen sharpness, and gives you CD-quality sound. Within 10 years your television may also function as a voice-operated personal computer, VCR, stereo, fax machine, and video telephone—one machine offering a world of options.

“We now think of our television like we do our toaster, as an appliance that does a certain something for us,” says Peter Moller, chair of the television-radio-film department in the S.I. Newhouse School of Public Communications. “That’s going to change. TV’s going to do more than just entertain us. TV’s going to become our banker. It’ll bring us our newspaper, help us do our shopping. Who knows what possibilities are out there? It’s certainly going to be a different kind of animal.”

Clearly, we are on the cusp of some revolutionary changes. We’ll soon have access to information and entertainment of all types, and we’ll be able to get this “infotainment” as we like it, when we like it. We’ll be able to watch custom-edited versions of the evening news, viewing only those subjects of interest to us, and viewing them in far greater depth if we choose. We’ll be able to access library information at 3 in the morning or learn French at home on a two-way tutorial.

Need shoes? Plug yourself into the home shopping channel of your choice, select some brown loafers, size 10, and—presto—check out that sharp-looking image of yourself modeling those shoes. And you won’t need to bother with that lifetime subscription to TV Guide. TV schedules may be history by the year 2000. Who needs one when you can watch a first-run episode of the latest sitcom whenever you choose? It’s entertainment on demand and at your fingertips, and depending on what you choose to spend, the possibilities may be as numerous as the channels.

Selling this high-tech smorgasbord is going to make certain people very rich, or at least richer than they already are, which is why telephone,
computer, and cable television companies nationwide are in a billion-dollar dash to deliver this infotainment cornucopia.

All three industries will play giant roles in the technological future, and as the convergence of technologies continues, many companies may form alliances. Some already have.

"The lines between the industries are blurring, and they're all competing for the same thing, which is access to your home," says Ken Auletta, a 1977 recipient of an SU master's degree in political science and author of Three Blind Mice, a 1991 book detailing the decline of network television in the eighties. "What we don't know yet is whether watching TV is going to be like watching TV as we're accustomed to, or if we'll be doing all this on a computer screen, or some new form of a telephone. Essentially, what we'll have is a screen, but whether that screen is connected to cable, computer, phone, or TV network is not clear at this point."

What is clear, says Richard Heun, CBS television executive and a 1976 graduate of the Newhouse School, is that radical changes are en route. "And," says Heun, "I don't know if a lot of these technological changes are as far off as people think."

That being the case, here's a brief primer on some of the buzzwords and dynamics helping define and drive the future of this technology:

- **Fiber-optic cables and digital technology** are what will breathe consumer life into most of these technological gadgets and allow two-way information traffic, commonly called interactivity. "This technology will reshape the very fabric of society and how we do things," says Charles McClure, a professor in SU's School of Information Studies and editor of Electronic Networking: Research, Applications and Policy, a quarterly publication with an international audience. In the digital realm, letters, num-
Sixth-graders in Cleveland have explored the pyramids of Egypt, uncovered ruined temples along the Nile, and traveled throughout ancient Mesopotamia; high schoolers in rural Montana and urban Georgia have learned Japanese at the same time from the same instructor; eighth-graders in Syracuse have visited the Louvre in Paris, the Metropolitan Museum of Art in New York, the Chicago Art Institute, the National Gallery in London, and art students in suburban Pittsburgh have collaborated on projects with students from Sacramento, Seattle, and Dallas; and art students in suburban Syracuse have visited the Louvre in Paris and made re-creations of the Mona Lisa to suit their individual tastes.

How is all this possible? Technology.

The whiz-bang wonders of modern electronics have begun bringing a new world to classrooms by making available educational opportunities never dreamed possible in traditional schools. Blackboards and lecture-based learning are increasingly giving way to cable television, satellite feeds, and multidimensional computer technology.

This influx of technology, information access, and tailored programming is changing the way teachers teach and students learn.

"Instead of the traditional method of lecture and note taking and textbook-based instruction, we now have students working with interactive videos and researching, writing, and producing multimedia projects in learning groups," says Fred Harner, executive director of Educational Technology Services of Ohio, which provides educational services to 135,000 elementary- and secondary-school students in southeastern Ohio.

Harter, a 1969 graduate of SU's School of Speech and Dramatic Art, says such technology helps students become independent learners and develop the problem-solving and critical-thinking skills now lacking in much of the adult world.

Students with access to technology are making more decisions about how they want to learn, says Harner. They're using software that combines sound, text, video, and animation, and allows for individually paced instruction or cooperative learning, which encourages students to prepare assignments together with less teacher input. They're using programs and functions to create newspapers and graphic-filled color reports, access library information nationwide, and create three-dimensional objects.

College students have similar resources at their disposal, and some are using interactive technology to simulate medical procedures, law cases, and combustible chemical reactions.

Technology, it seems, is finally starting to meet long-held expectations, and its full-force arrival has been warmly received by educational leaders.

"Technology is certainly beginning to move from outside the classroom to inside the classroom, and that's good for education," says Don Ely, chair of the instructional design, development, and evaluation department in Syracuse University's School of Education. "In the future, I can see each student being issued a computer to use at home and in the classroom. It will be a computer that not only stores information but plugs into existing information systems."

The number of personal computers in elementary and secondary schools has increased from 50,000 to 2.4 million during the last decade, with today's schools supplying an average of one computer for every 16 students. There's also a proliferation of educational programming in the schools. Shows generated by the Public Broadcasting Service alone are seen by nearly 30 million students in 70,000 schools nationwide.

Teachers fortunate enough to have such resources available have had to adjust their approach to teaching. "No longer are teachers the fountains of all information," says Ely. "They're becoming coordinators, facilitators, and learning coaches. They're teaching students to become more responsible for their own learning.

"One problem in all this is educating teachers so they can use the wide spectrum of technology available to them. In many cases, the students have been exposed to computers at home and are ahead of the teachers in terms of computer sophistication. Many teach-
bers, and sound are reduced to a sequence of zeroes and ones. Once compressed, these tiny numbers can effectively yield a tenfold increase in the number of cable channels that can fit in a local system and help usher in an onslaught of entertainment and information options. Enhancing the transfer of this digital world will be fiber-optic cables, hair-thin strands of glass in which data are reduced to pulses of light. These cables can carry 250,000 times as much data as standard copper telephone wires and could conceivably transmit the entire *Encyclopædia Britannica* every second.

**Interactive television** will rank among the greatest changes for the future. Instead of just watching your television, you can become involved with it. Passive TV will become passé when activity, along with interactivity, becomes the rule.

Your TV of the future will likely use advanced generations of CD-ROM, compact disks that store data instead of music and hold sound, video, still photographs, text, and animation. CD-ROM, which can only be used currently with special machines, allows users to personalize information. Say you’re taking a CD-ROM tour of the Smithsonian. Not only might you decide which rooms and exhibitions to visit, but you can also discover further information about the object or subject you see by selecting the appropriate categories and clicking on the proper icon.

What else awaits us? How about you-pick-the-plot movies (a menu will provide choices and paths),...
sophisticated video conferences that could make the home a more productive office, and fingertip access to the stock market.

"What happens in the next 10 years will be at least as revolutionary as what happened in the last 10 years, and probably more so," says Fred Phelps, Syracuse University professor of electrical and computer engineering and director of the Soling Program, in which students are charged with devising ways to find computer adaptations for everything from musical scores to basketball defenses.

Smart boxes may change the future of "channel surfing" by navigating the flood of TV channels waiting to engulf us. This interactive add-on can be programmed to automatically alert viewers when programs tailored to their personal interests—sports, comedy, war movies—are scheduled and where they can be found. It may also be similar to certain computer programs, in which a menu of categories will be presented and viewers can choose the programming direction they wish. Or it could be voice-automated—imagine being able to talk to your TV and not having your sanity questioned.

Virtual reality could become the hottest home entertainment toy of all. Calgon couldn't possibly dream of taking you places that virtual reality can.

Many of tomorrow's technological toys, including 500-channel cable systems and interactive gadgetry, are already being test-marketed today in communities across the country. Yet it may be another 10 to 15 years before the wrinkles are ironed out and access becomes widespread. Consumers will likely gain these technological accessories in piecemeal fashion—mass-channel systems here, digital bulletin boards there—and nationwide acceptance and understanding may take many more years. Many questions remain.

Virtual reality could become the hottest home entertainment toy of all. Calgon couldn't possibly dream of taking you places that virtual reality can.

Networking ability are going to be left behind," says information studies professor Charles McClure.

Many of tomorrow's technological toys, including 500-channel cable systems and interactive gadgetry, are already being test-marketed today in communities across the country. Yet it may be another 10 to 15 years before the wrinkles are ironed out and access becomes widespread. Consumers will likely gain these technological accessories in piecemeal fashion—mass-channel systems here, digital bulletin boards there—and nationwide acceptance and understanding may take many more years. Many questions remain.

UNANSWERED QUESTIONS, PART II.

Will all these home entertainment changes leave network television on the telecommunications trash heap of history?

It could happen, says author Ken Auletta: "The networks will continue to lose audiences, and that's a given. More choices will mean fewer viewers for the networks."

Not so, says Ray Borelli, NBC manager of marketing and media analysis. He believes the networks' broadcast advertising reach will ensure their survival.

"The environment is going to change, no doubt about it, but by my perspective, there's still no better way for advertisers to build brand equity, increase sales, and launch new products than the networks," says Borelli, a 1986 graduate of the Newhouse School. "We can still reach mass viewers like no one else can, and that hasn't changed. Take our Saturday morning blocks dedicated to teen viewers. We reach more viewers on Saturday morning watching Saved by the Bell than MTV gets in prime time. Our teen rating is 8 times higher than MTV and 16 times higher than Nickelodeon."

"Maybe it took the networks a while to learn how to keep viewers, but we've learned how to do it through event programming like the Oprah interview of Michael Jackson and the build-up of the Cheere finale and by creating mini-networks like our Saturday morning lineup and our late-night lineup, which we sell as a way to reach upscale viewers," he continues.

"The networks are not going to die. In fact, the addition of more and more channels may be better for the networks, not worse. There's no way advertisers can reach the audiences on 500 channels that networks can. The cable channels are all competing against one another for advertisers."

Syracuse University Magazine, Vol. 10, Iss. 1 [1993], Art. 7

https://surface.syr.edu/sumagazine/vol10/iss1/7
What effect will technology have on life in the workplace?

A big one, says Ben Ware, Syracuse University vice president for research and computing. "We really don't take advantage of technology in the workplace now," says Ware. "In the future, we'll be able to stay at home and have access to all the desktop uses we do now at the office. Pretty soon we'll be able to do at home almost everything we would do at the office. This may create greater work flexibility, and allow us to be in the office only two or three days a week, or to stay home when a child is sick and still accomplish some work. Technology affords us flexibility we don't really have now. It could help take some of the stress off people with so many competing demands, like work and family."

What will all this technology, in particular home technology, do to society?

As entertainment choices increase, will TV's dwindling ability to provide a common cultural reference point vanish entirely? Will technology overload spawn advanced forms of couch potatoes?

"Some social scientists worry these things will make people less social," says Syracuse sociology professor Gary Spencer. "But look at the extent to which people have become less social already. When I take a walk in my suburban neighborhood, people are in their own little caves already without interactive television. In some ways, I don't know how this can make us do less.

Arthur Paris, also a Syracuse sociology professor, worries that more choices may result in less common knowledge.

"Are we then moving away from a situation of having a broadly informed public to having information rich and information poor?" asks Paris. "If you have various niche markets instead of a mass market, is the mass media going to completely abdicate its role of informing the citizens of society and instead begin serving only those folks who can pay the freight? Things have gotten progressively worse in terms of citizens being aware of the fundamental issues facing the nation. I don't think citizens are generally well informed now as it is, and things may only get worse."

The bottom line on the technological future seems to be this: Few people, if anybody, really understand the ramifications of all that's coming or can say, without reservation that all these gadgets will be just wondrous stuff for work and play. If we're not careful, commercial concerns and unscrupulous sorts could take advantage of a slumbering public.

"The future is somewhat scary from an Orwellian point of view because there's danger in the misuse of all this access and information," says Fred Harner, executive director of Educational Technology Services of Ohio and a 1969 graduate of the School of Speech and Dramatic Art. "But it's still an exciting future when you think you'll be able to access information of all kinds from anywhere anytime you feel like it, and that's clearly the direction we're heading in."

Syracuse University Magazine
One of the most exciting components of Melvin A. Eggers Hall, opening in January, is the International Exploratorium. This facility will bring a myriad of interactive technology opportunities to SU students.

If you’re an SU student taking engineering, computing, or communication classes, you expect to use various forms of technology. That hasn’t been the case with classes like political science and public affairs. But that’s changing.

Syracuse University’s newest building, the nearly completed Melvin A. Eggers Hall, includes a 70-seat classroom connected to a facility for interactive exploration and study of international television, radio, and print media. The International Exploratorium will allow students in the Maxwell School of Citizenship and Public Affairs to use computers to access international television signals, foreign language radio broadcasts, international press reports, and a variety of maps and quantitative information.

Eventually such data will be in digital form, suitable for analysis and integration into reports, memos, and briefing papers. Future classes in Eggers Hall will also be linked by satellite hookups with the University’s overseas campuses in London, Madrid, Strasbourg, and Florence.

“This will transform what we do in a lot of dimensions,” says Stuart Thorson, director of Maxwell’s new Institute for Global Affairs. “Being able to see more and be involved will put ideas into context for students, and that’s important. Students are going to learn how technology can support democratic governance.”

Technological advances at SU won’t be confined to the Maxwell School, of course. The entire University will benefit from technology, says Ben Ware, vice president for research and computing.

“We’ll be able to take advantage of new technology in so many ways,” says Ware. “We might even be able to extend our alumni involvement by making continuing interaction available to SU via computer hookup. We could offer continuing education courses and seminars to alumni to keep them current in their fields and offer them digital bulletin boards of campus information to help keep them active in the University.”

Increased access to information and technological resources could eventually alter teaching and learning everywhere on campus, and may someday prompt curricular changes and further resource sharing in Syracuse colleges such as the S.I. Newhouse School of Public Communications and the School of Information Studies.

“We don’t have digital technology yet because the technology is so expensive, but maybe we could share the cost of such technology with Information Studies,” says Peter Moller, chair of Newhouse’s television-radio-film department. “As it is now, we encourage students to take courses in both Newhouse and Information Studies. One day I would like to see us combine certain degree programs.”

Some level of future curricular integration may occur between the schools, says Donald Marchand, dean of the School of Information Studies.

“The nature of the information industry worldwide is that technologies are going to blur the boundaries between those who provide and produce information and those who support information structure, and that’s going to be reflected in the kind of degrees given in the nineties and beyond,” says Marchand. “With these new technologies, people are going to be creating new products and structures and there’ll be a shift in how we provide education to the people working in these industries.”

— B.H.