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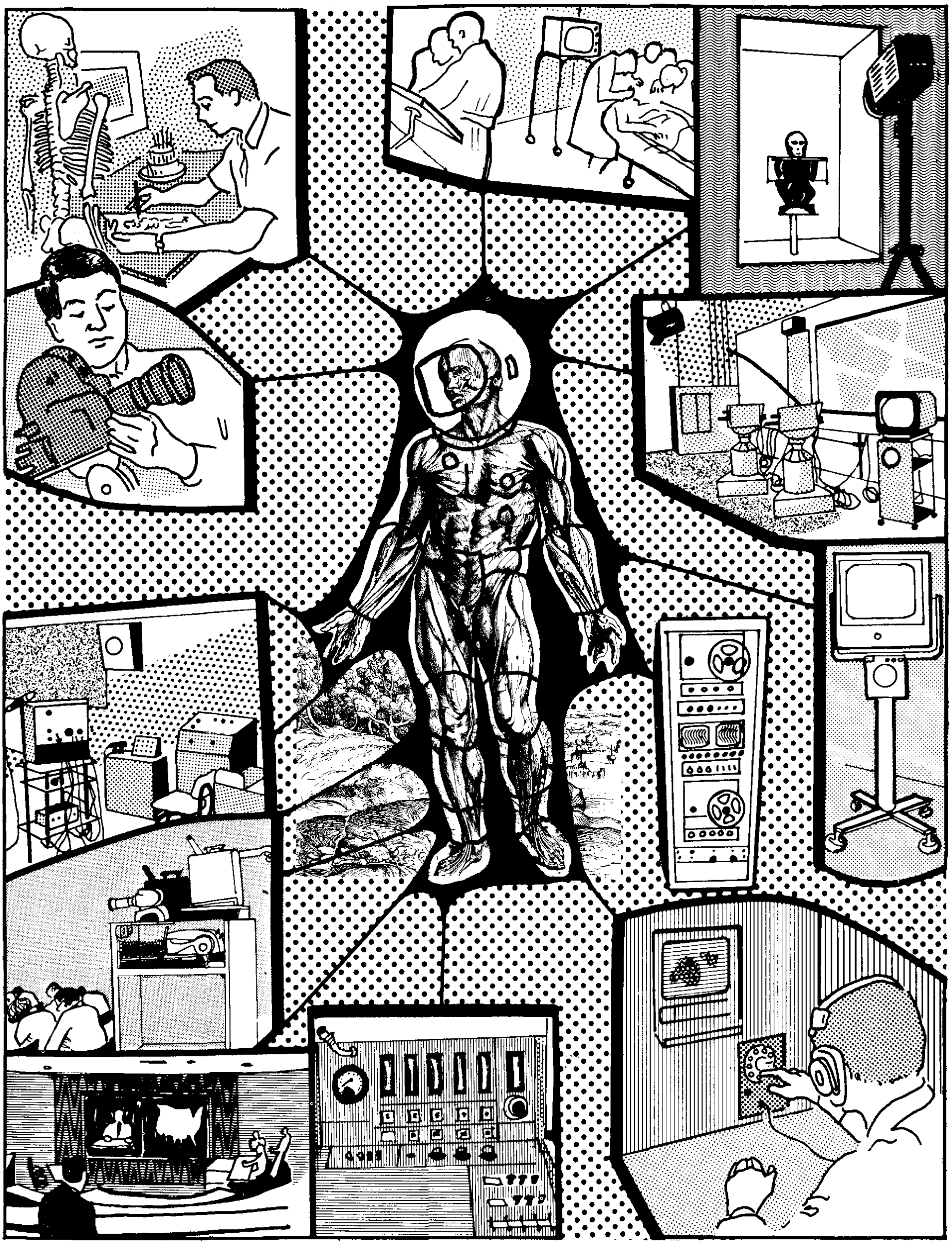
UBC REPORTS — CAMPUS EDITION

AUDIO VISUAL SYSTEMS:

Effective Teaching Tool

Our cover illustration by Victor Doray, director of the medical illustration department, shows man at the centre of a broad array of audio visual devices which extend and amplify his capacity for communication. The possibilities and the problems of AV devices in education are discussed by Doray and other experts in this field on Pages 2 and 3.



UBC Lags In Audio Visual Field

Faculty and staff members who are most closely involved with the use of audio visual aids at UBC are in full agreement on several points.

The University's present facilities are inadequate in relation to the needs in this area.

UBC lags behind most other universities in the development of this field.

Development of an audio visual production centre to serve the general needs of the University as a whole is becoming an increasingly urgent priority.

Most departments of the University have some audio visual equipment but the main areas of concentration are in the Faculty of Education's audio visual department, the Faculty of Medicine's department of medical illustration, and the Extension Department's audio visual services.

"We feel that there is an urgent need for a communications centre on campus including a distribution system, a production centre for all phases of AV, and a central library including books, charts, slides, film and videotape," says Professor B.R. Whitinger of the Faculty of Education.

"UBC is far behind most Canadian universities in this area and a centralized facility for the whole campus, with decentralized facilities in large departments, is a top priority need."

Prof. Whitinger says his department would like to work towards the development of more automated AV devices such as audio visual film loops and AV carrells linked to an information retrieval system to give students access to material on film, videotape and other mediums.

8,000 REQUESTS HANDLED

He also feels that large departments on campus should have an AV consultant on their staff to advise faculty and students on the best use of AV equipment and techniques.

Prof. Whitinger says within the Faculty of Education alone last year his department handled 8,000 requests from staff members for use of AV equipment, excluding TV, and 5,000 requests from students, excluding those using equipment in professional courses.

The department's equipment includes a fully-equipped TV studio with closed-circuit service within the Education building, five sets of mobile TV equipment and a broad range of video tape, still and movie film equipment and production facilities.

The department handles AV production for the Faculty of Education and other UBC departments such as nursing education and continuing medical education and for outside organizations such as the Vancouver School Board.

Television videotape facilities are used for such applications as counsellor training, training in musical conducting and teacher training. Students can analyze their techniques and spot faults by means of instant playback of the videotape.

Audio visual equipment is also finding a growing number of applications in the Faculty of Medicine where the AV services are operated by the department of medical illustration.

Arvid Kendall, TV director for that department, says TV equipment is now in use in the department of psychiatry to film interview techniques, in the school of nursing, the department of anatomy and in the department of health care and epidemiology.

Kendall is now purchasing new equipment which will be used to test various techniques and applications of TV to teaching in preparation for development of the Faculty of Medicine's Instructional Resources Centre in 1971.

The pilot equipment includes four TV cameras ranging from a desk-type unit with a monitor to a remote control pan tilt unit with a remote control zoom lens.

The cameras can be used as a system or as individual units.

"We will use this equipment to find out what applications of TV to teaching are valid. Is it of value to monitor a patient via TV at a nursing station for example?" Kendall said.

VERY SIMPLE EQUIPMENT

"Another advantage of this equipment is its extreme simplicity. The user simply has to point it and focus it. I've seen some university TV set-ups that are so complex that only a professional can use them and other people are scared off by the complexity of it."

Kendall said the pilot equipment will allow faculty members to explore the possible applications of TV without worrying about complex equipment.

"When our Instructional Resources Centre in the Health Sciences Centre comes into operation we will have technicians to operate the professional equipment and by using the simpler equipment now teachers will have learned the possibilities of TV for them."

Victor Doray, head of the medical illustration department, says the projected Instructional Resources Centre will combine all AV media in one area and will serve the needs of the completed Health Sciences Centre.

"Although television—and later the computer—will be our main integrating and distribution media, the emphasis will be placed on a multi-media approach which will knit art, photography and AV educational research into a total systems framework."

Doray says the Instructional Resources Centre will include such facilities as AV-equipped lecture halls, a

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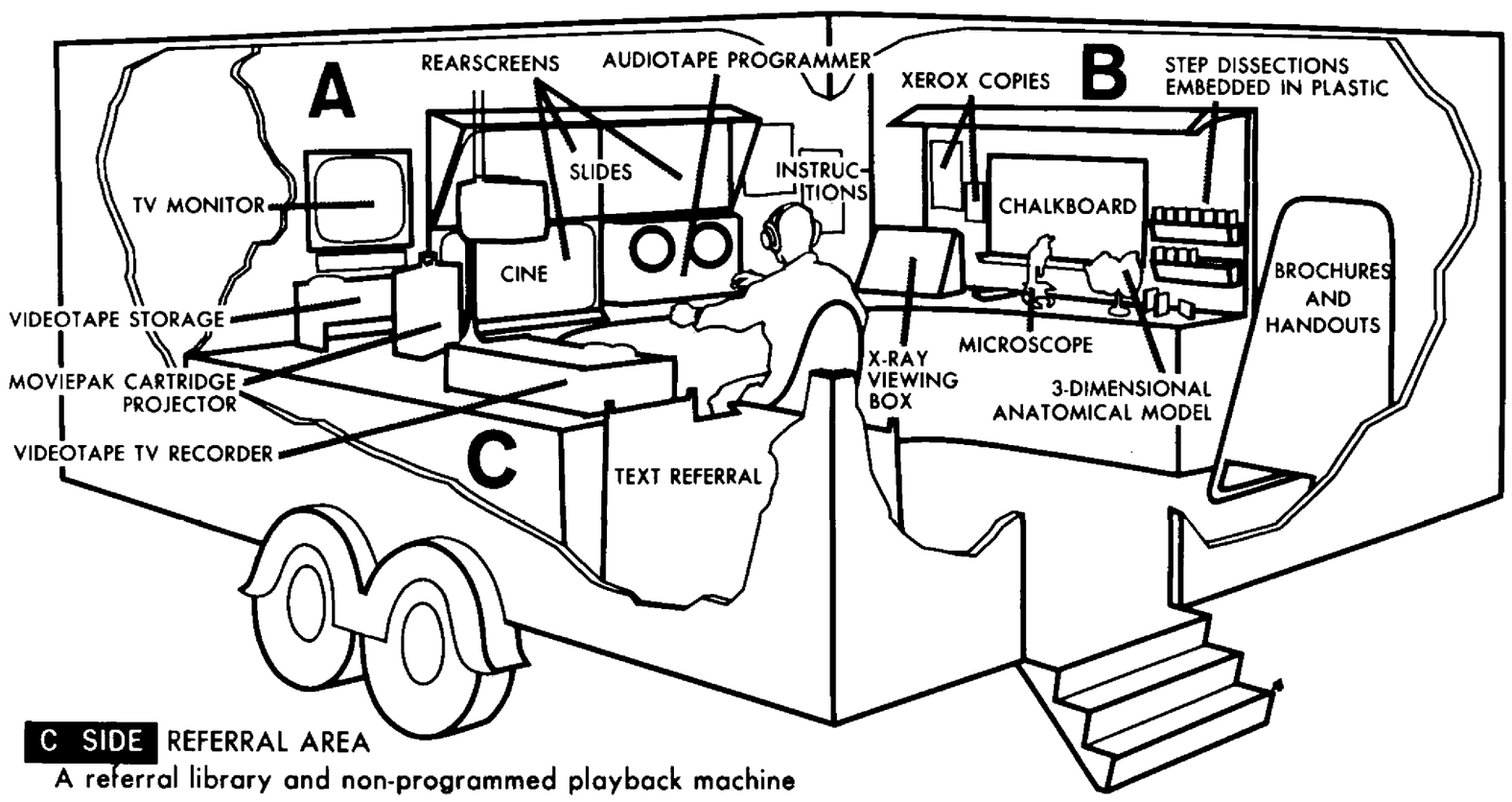
see AUDIO VISUAL



This mobile learning van will allow students or small groups off-campus or in remote areas to obtain programmed material on a multi-media basis. For example, the trailer could be parked at the home or office of a physician in a remote community participating in a program of continuing medical education. An audio tape recorder provides not only audio material but controls the automatic programming function for two slide projectors, a movie projector and a TV projector.

AUDIO VISUAL: THREAT OR PROMISE?

Audio-visual systems, a complex and sometimes bewildering array of electronic equipment, are a growing part of the education scene. Victor Doray, director of the department of medical illustration, gives his personal views on AV and makes the case that they can be a valuable tool instead of a source of confusion for the educator.

AV AND THE UNIVERSITY

If you wanted a very strange prediction of what is going to happen in the future I'd suggest that UBC, Simon Fraser University and other post-secondary institutions will function primarily as production centres for materials that will be dispensed through the media.

Universities will be reference points for live brains—faculty members—accessible to individual students who are moving from one institution to another with floating credits.

I think the University will be the repository of sophisticated laboratory apparatus which is required to be centralized close to the live brains to which the students can go.

Adjacent to an audio visual production centre, which will be located somewhere between the library and the computer centre on each campus, will be large auditoria capable of multi-media, highly-programmed, Expo-like presentations, where two or three thousand people can be given the same experience at the same time.

Evaluations are just coming through now on the five to 10 per cent of campuses in the United States which have experimented extensively with AV. The results show that in most cases there is no significant difference in attainment between the student taught by the media alone or by the conventional method of classroom teaching.

One can take two attitudes on this: that there is no point in buying expensive TV equipment if the teacher in the classroom is doing the job; or, one can say that it is possible to reach 10,000 people with TV and obtain the same results as a teacher working with a classroom group. In other words, you can reduce the cost of teaching. I am not advocating this kind of total expediency but I'm simply suggesting that you can make a point even here on behalf of the media.

I think that what UBC will be facing in the future is growing pressure to ensure that a greater efficiency per dollar must come out of our educational system.

I hate the word efficiency because it sounds sterile, but the point is that we can show that the educational methods we use today are not only inefficient but the are disastrous in terms of the impact they have on some of our brightest students who are dropping out of this system.

It can be shown that with the use of visual aids more students can be reached with the raw data—the data that has to be poured into any curriculum.

It can be shown that we need increased curricular flexibility if we are to respond to the requests of the students who have much more sophisticated demands from a society that calls for a greater ability to cope with many different specialties.

It is also agreed by most teachers that you get better results if the student can learn at his own rate.

If you take all these factors into consideration you can see that probably the only way we can economically allow for an expanded curriculum and self-motivated study is through the use of some kind of machinery which allows the student to absorb the raw data at his own rate.

The machines are often called audio visual carrells. More sophisticated ones are dial access carrells where the material is fed out from a central "library" area and the student can retrieve any information he needs by dialing a code.

In considering AV, one has to weigh the investment in the dispensing materials against the facility this type of system affords for diversity and self-paced study and the number of people you can reach against the additional cost of more space and teachers needed for conventional techniques.

At this point I believe that AV becomes economical and justifiable.

AV AND THE PROFESSOR

I'd say that on the whole most educators do not know how to use visual aids. Probably 10 per cent at the most use them properly—as an extension or a supplement to themselves.

Audio visual hardware is there to be used and is neither good nor bad in itself. It becomes bad when the educators, writers, artists or whoever refuse to become involved with it and then become angry or disenchanted when the information process is primarily of a technical, administrative and often dehumanized nature.

I said in an interview recently that if you piled all the AV machines on top of one another you'd form a tower of Babel which would crush the educator—unless there was a foundation or a core of creative productivity and thinking by the teachers in using them.

Most teachers become very self-conscious about AV aids—they see them as a threat.

I think we must realize that the book—the first teaching machine if you like—took almost 100 years to gain acceptance. Today there are hundreds of developments piling in on us; there's television, the computer, computer-assisted learning and so on. The development of technology today is so swift and so complex that we can't afford 100 years for people to get used to it.

Educators are going to have to make a concerted effort to learn about AV and not simply say that it is too complicated and reject it.

I am just completing a film on all the buttons and levers that a person operates in his car or house during a routine day. If you confronted the average educator with one quarter of these buttons he'd say that we are getting too technological. He must realize that this technology has become part of our daily life.

Why should he not say that if there are items that will assist him in his teaching he has the same obligation to get his "driver's licence" for them as he does for his car?

If you wish to make yourself more of a communicator in terms of sound, sight or conveying motion AV materials can provide this function. In other words they should become part of your amplification process and are not individual machines which you put down in front of the kids and expect them to do your job for you.

I'm pretty leery of most courses in the use of AV because their approach is to teach you how to turn on the projector or thread the tape. Courses in sensitization might be more important.

How do I become sensitive to the peculiarities of an instrument? In what way does the technique of television editing differ from movie editing? What are the implications for me as an educator when I do wish to use TV to teach something?

What has to happen is that a teacher must come to someone who knows the media and discuss his particular project and the techniques which may be used. They must try and arrive at a solution that is viable in terms of that particular professor's philosophy of teaching and also in terms of the limitations and benefits of the medium he plans to use.

We are moving towards a situation in which teachers will be producers or at least co-producers. In education and the new technology the professor's role is changing to one of a producer, a stimulator, a co-ordinator, a person who strives to find out the problems of the individual student and cope with them. Ideally, if the media are used properly, they will free the professor and give him the time to interact with the student as a stimulator of the education process.

AV AND THE STUDENT

You often hear that students today are disenchanted with the technology of our age and the dehumanization of our universities as a result of machines and, in some cases, audio visual materials.

There is some truth in this because AV has in some cases been used in a very dehumanizing way. Some teachers see this equipment as a substitute for themselves in the classroom instead of saying "this frees me to interact with students."

We have what is called a TV generation student coming to our campuses right now. They are supposed to be passive and unwilling to act in the sense of priorities or judgements because they have been sitting in front of the so-called passive tube. If I look back 10 years to my generation of students I come to the conclusion that we were the passive ones. We were the ones who allowed our newspapers to be headlined with panty raids and other ineffectual things of this nature rather than the substance of what was going on in our cities and in our country. One has to take a really hard look at people who claim the media make a person passive and non-involved.

Students today are asking for current validity to be the keynote of whatever they are going after. Wherever this current validity is lacking as the basis of a man's teaching or an administrator's position students attack the areas they consider vulnerable. One of the things thay they question, of course, is our present system of teaching and government in universities. Institutions that have rested heavily on what might be called arbitrary authority—the universities, the church and the law—are now feeling this pressure.

There is tremendous evidence of the response of students to audio visual media, to film for example. There are something like 2,000 film production courses going on in North America right now.

The University of Michigan, instead of assigning essays on poverty or something of this nature in their sociology courses, now give the students cameras and tape recorders and tell them to come back with a pictorial essay on the subject. The appreciation which the students get of what the situation really is, together with the reading which they tend to do more of as a result of their personal involvement, had made the teachers really thrilled with this project.

In our own University, Dr. William Gibson of the department of history of medicine and science, has also used techniques of involvement. He has found that involving the students in preparing their own study exhibits has given them a motivating factor which they never got from a reading list alone.

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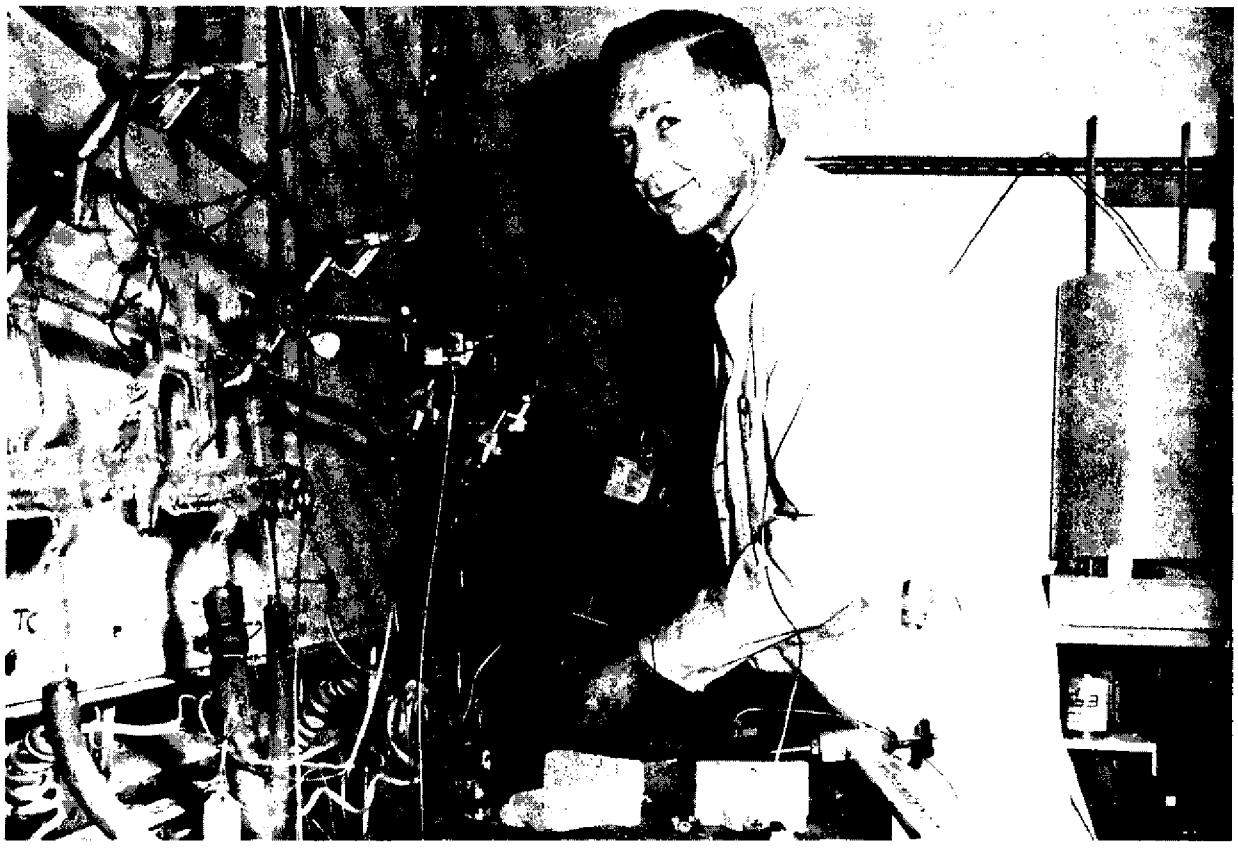

UBC Extension Photo Services

1968 Steacie Prize winner, Dr. Hugh Greenwood, prepares an experiment in his geology building laboratory

STEACIE PRIZE

Two Win Major Awards

Major national awards for scientific research have been won by two University of B.C. faculty members working in the fields of geology and psychology.

Dr. Hugh Greenwood, a 37-year-old member of the UBC geology department, has been named winner of the National Research Council's 1968 Steacie Prize, which includes a cash award of $1,500.

Dr. Robert Hare, 36, of the UBC department of psychology, has been awarded the $25,000 1969 research award by the Canadian Mental Health Association.

Both leading scientific awards have been won several times in the past by members of the UBC faculty.

FORMER AWARDS

The 1965 Steacie Prize was shared by Dr. Neil Bartlett, former professor of chemistry at UBC, with University of Toronto chemist John Polanyi. The 1966 prize was won by Dr. Gordon Dixon of the UBC biochemistry department for his contribution in the synthesis of insulin and the 1967 prize was given to Dr. Myer Bloom of UBC's physics department for studies of molecular behaviour.

The CMHA research award was won in 1961 by Dr. Patrick L. McGeer of the UBC faculty, now on leave-of-absence as leader of the B.C. Liberal Party, and in 1964 by Dr. Alex Richman, then a member of UBC's department of psychiatry.

Dr. Greenwood's Steacie Prize is in recognition of continuing basic research over the past decade involving high-pressure, high-temperature studies of the physics and chemistry of rock formation.

Mineral samples are subjected in his UBC laboratory to temperatures up to 1,000 degrees centigrade and pressures up to 100,000 pounds per-square-inch. These pressures and temperatures simulate the conditions under which natural rocks crystallized far beneath the earth's surface and assist in analyzing the process of mineral formation.

LIKE BAKING A CAKE

Mineral samples, encased in a gold capsule inside the pressure chamber, are "cooked" for up to six months and Dr. Greenwood compares the process to baking a cake in which the cook has to wait months for results.

"We hope to find answers to such questions as how valuable minerals are transported and deposited in rocks," Dr. Greenwood said.

"If we knew this it would allow us to make some statements on where valuable minerals are likely to be deposited although we could not pinpoint locations."

Dr. Greenwood, a native of Vancouver, took his bachelor and master's degrees in applied science at UBC before earning his doctorate at Princeton University in 1960. He worked as a practising geologist for 18 months in Northern Quebec before pursuing his doctoral studies at Princeton.

Dr. Greenwood was awarded a pre-doctoral fellowship in 1958 to the Geophysical Laboratory, Carnegie Institute of Washington, and later joined the Institute's staff as a physical chemist.

He was then appointed to the department of geology at Princeton University and taught there for four years until he returned to Canada in 1967 and joined the UBC Faculty.

Dr. Greenwood, who plans to continue his research in the high-temperature, high-pressure field, says work in this field combines geology with chemistry, mathematics and computer sciences.

Dr. Robert Hare was selected for the CMHA research award from a number of candidates nominated by universities across Canada and was recommended by Dean Walter Gage, UBC's acting president.

DEAN GAGE PRAISES WORK

Dean Gage described Dr. Hare's work on the psychophysiology of psychopathy as among the most significant being done in this field and work which has gained international attention.

Dr. Hare's research deals with the learning processes of the psychopath, the chronically anti-social individual who shows no remorse or conscience for his actions.

Most of Dr. Hare's subjects are now in penitentiaries although he plans to broaden the field by studying adolescents and children.

Dr. Hare has previously received other grants and awards including one from the National Research Council and also a Canada Council grant which he plans to use for study in England and Sweden.

He plans to use the CMHA award for selected long-term research projects, one of which will include purchase of a completely equipped research trailer to carry out physiological tests at various locations in B.C.

The bulk of the $25,000 award will go directly to Dr. Hare for research purposes and the balance of $5,000 goes to UBC to cover administrative overhead in connection with the research.

Dr. Hare earned his bachelor and master's degrees at the University of Alberta in 1958 and 1960 and took his doctorate in experimental psychology at the University of Western Ontario in 1963.

He joined UBC's department of psychology in 1963 as an assistant professor and is now an associate professor in that department.

Dr. Hare has published numerous research papers in his field and has been invited to write two books on psychopathy, one for the Academic Press and the other for Pergamon.

AUDIO VISUAL, *continued from page 2*

media library and production centres for art, photography, television and other media.

"The heads of each media section will be available as consultants to professors and students," Doray said.

"A central projection control will take care of AV operation in all the lecture halls and we would hope eventually to have dial access carrells with computer retrieval of material on slides and videotape."

Using an AV automated carrell for example, Doray said, a doctor who had to perform a heart operation the next day could retrieve and study drawings of typical incisions, film of previous surgical procedures, X-rays comparing normal and abnormal hearts and gross dissections imbedded in plastic.

"In other words we hope to answer all kinds of questions from find me a slide to draw me something, project a film for me or produce a TV demonstration," Doray said.

"We hope to tie-in our TV system on a network basis with all the buildings of the Health Sciences Centre, the psychiatry satellite, the teaching hospital, dentistry, the Woodward library, and eventually with a central university AV facility and off-campus systems."

University Hearings Set

A commission on the role of universities in society and their relationships with government will hold public hearings this month at the University of B.C.

Details of the time and location of the hearings will be published in This Week at UBC.

The Commission on the Relations between Universities and Governments is a joint project of the Association of Universities and Colleges of Canada, the Canadian Association of University Teachers, the Canadian Union of Students, and the Union generale des etudiants du Quebec.

The terms of reference of the commission are:

—To consider the distinctive role of universities in the changing Canadian society.

—To determine the need, nature and extent of university autonomy and government and public control of universities and to recommend the appropriate instruments by which relations between universities and governments can be established that do justice to their responsibilities.

Doray says an integrated systems approach to the multitude of AV applications and equipment is essential.

"AV includes everything from slide projectors to television and sound and lighting systems. If you approach these items individually you come up with a bewildering battery of controls. It only takes one missing extension cord for the professor to say to hell with this and go home," he said.

"Using a systems approach you can combine a lot of AV equipment into a single control unit and centralize both the fucntions of operation and maintenance."

Doray says the systems approach is being used in planning for the Instructional Resources Centre but the University as a whole is still not thinking in terms of an integrated systems approach.

"We are so far from thinking this way in terms of the University as a whole that you wouldn't believe it," he said.

"We are still wondering whether we're getting the films delivered by truck fast enough and whether there are two prints in our library of the National Geographic special of 1958."

The third area of AV concentration on campus is in the Extension Department's Audio Visual Services.

Supervisor Tom Whitehead says the department has a variety of AV equipment available for rental to departments, ranging from tape recorders to public address systems and a variety of film and slide projectors.

The department also has a library of 3,000 films on a wide range of subjects.

Whitehead says his department's resources are inadequate for the needs of a major University and are not much better than what would be available in a large high school.

Financing is a major problem and there are no immediate plans for expansion. Whitehead agrees with Doray and Prof. Whitinger that there is an urgent need for a centralized AV media centre for the University as a whole.