

Progress at what price?

an office using VDT's than in a
rk office can present a depressing
rt Stammersohn of NIOSH points
light are all right for air-traffic
il and paper tasks at 200 lux can
n the tasks."

promise in the light level may be
operator is using paper reference
st be bright enough for the paper
een content.

uments could also be lighted by
mp. However, in that case, the
e made from a color other than
rator does not have to continually
a dark screen to a bright paper.
ence material should be situated
that frequent large head and eye
led. The material should also be
tance from the eyes as the screen

mps, neral n poor station

which may fatigue
t holder may aid this.

screen should be perpendicular to
American Optometric Association
e top of the screen be 10 degrees
; straight head seeing position and
reen 20 degrees below. There is
eement on the proper viewing
NIOSH recommends 45 to 70 cm,
etric Association 35 to 50 cm, and
; Newsletter 27 inches (69 cm) or
or should simply find the distance
st comfortable.

Optometric Association says the
reen should be at least ten times
ground, and that the terminal
le for character brightness. The
o be large enough for comfortable

There have been reports of VDT's causing cataracts in the eyes, but none of these claims have been substantiated. There are numerous other causes of cataracts, such as drugs, trauma, inflammation, and inheritance. Two New York Times copy editors complained of cataracts, but it was concluded that VDT's were not the cause.

Physical Problems

Backaches, neck cramps, shoulder pain and general fatigue can result from poor design of the VDT work station. Operators may be forced to assume unnatural positions in order to see the screen properly. As well, sitting in one position for eight hours will naturally cause considerable discomfort and fatigue. The human body simply functions better when it is moving, as is demonstrated when comparing one's tolerance to walking or standing in one position. Periodic stretching and exercising will help to ease tired muscles and reduce tension.

The screen and keyboard should be adjustable so that the operator may get the best possible viewing position. It is also important that the heights of the chair and the table be correct for each operator, to avoid sitting hunched down over the keyboard. If the head is bent too far down, neck and shoulder fatigue and headaches will result.

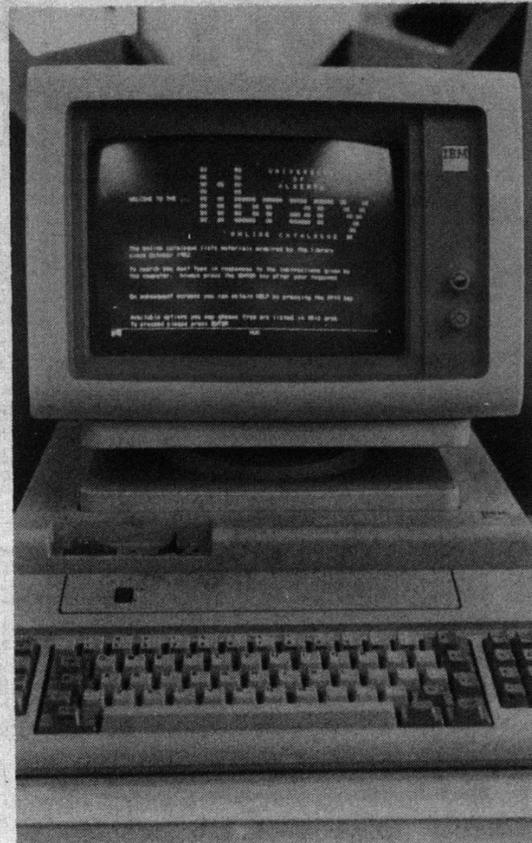
The thighs should be horizontal and the chair and the feet flat on the floor if the chair height is correct. It is essential that the chair be well-designed, as it affects posture, circulation and pressure on the spine.

The chair should have a small, adjustable back rest which will support the lower spine and lumbar region.

This backrest should be adjustable both forward and up. A rounded seat front will keep the chair from cutting into the thighs, while a seat cover made from woven material will prevent sliding, body heat buildup, perspiration, and chafing. As Herbert Vetter of the University of Vienna notes, "discomfort producing positions assumed over many years of work are likely to lead eventually to permanent damage, particularly to various portions of the spinal column."

Stress

Perhaps the most serious problem cause by VDT's and yet the least discussed, is stress among operators. Stress results not only by the vision and back problems caused by VDT use, and the publicized reports of radiation hazards, but also from the very nature of VDT work. The machine paces the work, not the operator, and it also controls the work methods. Employers or supervisors may expect a certain work pace and work load based on the capabilities of the machine, not the operator. The quality of the work can now be judged



Even our very own library system has a VDT system.

problems, because they fear losing their jobs.

Stress can cause upset stomachs, headaches, dizziness, sleeplessness, irritability, fatigue, and rapid heartbeat. If prolonged for many years, it can lead to ulcers, digestive problems, hypertension, and heart attacks.

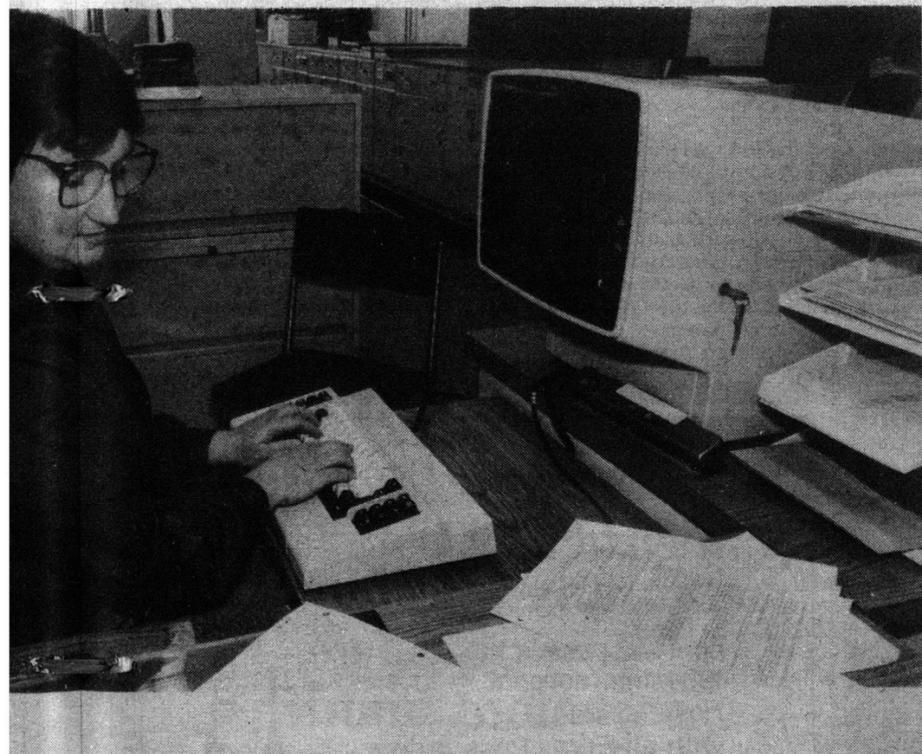
There are some ways to reduce stress and tension for VDT operators. Correcting the vision and back problems created by VDT's would help. So would periodic rests for operators. NIOSH recommends a fifteen minute break every two hours under moderate visual demands (less than 60 per cent of the time spent looking at the screen) and a 10-minute break every hour under high visual demands. In Denmark an hourly 10-minute break is mandatory for VDT operators. In some countries operators are allowed a half-hour break at the end of the day to allow their eyes to rest. Eyes can be rested while sitting in the distance. As well, simply relaxing and closing the eyes, and mentally transporting oneself out of the work environment, can be helpful.

Allowing VDT operators to periodically rotate to other jobs would also provide some stress reduction, as it would provide contact with other workers, would reduce boredom, and would help to ease muscle tension. Keeping workers from feeling isolated in the office and giving them some sense of control over their tasks might also alleviate stress, as would consultation with them over the major changes in the workplace (such as the introduction of VDT's).

Conclusion

VDT's have eliminated many boring and painstaking tasks, though they have created some new ones. They have greatly simplified data storage, but they have brought with them a host of problems. Many of these problems can be solved with improved office and terminal design and proper consideration on the part of managers. However, how likely is any of this to happen?

Employers are motivated by profits, not worker happiness. Poorly-designed terminals will be replaced when they are obsolete, not because they cause eyestrain or back problems for their operators.



The simple turn of your head can cause back strain and headache.

Occupational Environment Branch
uld be from 3.1 to 4.5 mm in height.
creen and deteriorating cathode ray
character brightness and clarity to
ens should regularly be cleaned and

the machine may cause some problems
atic is present, dust will gather on the
vian study has apparently shown that
use leading to an increase in
ms and skin lesions. The authors of
tulate that static causes the hairs on
e. These vibrating hairs then allow
across the face and to move into the
fections. A test for static is to rub the
s: if there is excess static, the hairs will

solely in terms of the quantity. The work is often monotonous and repetitive and occupies only a few of the worker's abilities, while taking no account of individual preferences.

There is also a considerable reduction in social interaction with other workers. Operators may be forced to spend hours riveted to their machines, with no contact with their surroundings.

Workers who are shifted from other jobs and are forced to learn to use VDT's may undergo a lot of stress. Some workers, of course, may be interested in the chance to learn a new skill, but the novelty of the machines will eventually wear off.

VDT's can also cause increased job insecurity, since they reduce the need for office staff.

Some workers are even afraid to talk to their employers about their fears over VDT health and safety

Supervisors expect a work pace based on the capabilities of the machine, not the operator.

Office redesign can be expensive, and few employers are likely to welcome allowing workers to share in decisions regarding the introduction of new office technology and redefinition the roles of employees.

Perhaps only government legislation will help to improve working conditions for many VDT operators. In conclusion, once workers have had enough of being forced to work at meaningless, boring, degrading jobs, they'll see the necessity for social revolution.