enforcement: too few inspectors, long court delays and inadequate fines combined to limit the effectiveness of the previous codes. Mr Kretchmer felt that the most important feature of the new code was that it would consolidate enforcement procedures into administrative actions by the Environmental Control Board, which would be able to impose civil penalties on $100 a day.

Up to now, violations of air pollution regulations were considered criminal offences and had to be tried in court, a slow and ineffective process. The courts generally imposed low fines; the present maximum is $1,000, but the highest amount collected has been $600. Under the new code, the criminal fine can go as high as $5,000 a day. Mr Kretchmer is hopeful that the courts are now more willing to enforce high fines and that once fines reach a level comparable with the cost of installing acceptable equipment, companies will be more likely to comply with the law.

Another feature of the code is its attempt to reduce the level of all emissions. The sulphur content in residual fuels is reduced to 0·3 per cent, only slightly less than the 0·37 per cent limit under the present New York State law, but applicable to power plants, which are excluded under the state law. Con Ed and other plants in the east have complained this autumn that because of the projected fuel shortage, it will be difficult, if not impossible, to find enough low-sulphur fuel. Mr Kretchmer and Mr Rickles both rejected this argument. "It is not our responsibility to get fuel," Mr Rickles said; "we are satisfied that the standards are manageable within the technology available."

Other regulations outlaw the spraying of asbestos compounds, eliminate the use of lead compounds in petrol by the end of 1973, ban the emissions of mercury, cadmium, beryllium and asbestos (except for brake linings), and reduce to one minute the allowable idling time for motor vehicles.

All these regulations are admirable in their intent, but so were many of the earlier provisions, and yet little was actually done to limit air pollution in the city. Enforcement will probably continue to be the chief obstacle, in spite of Mr Rickles's confidence that the new code contains "every possible enforcement tool".

Citizens are being given an incentive to become personally involved, since under the new code a citizen who reports a violation will receive a proportion of the imposed penalty. If the New York City EPA fails to take action on a reported violation within 45 days, citizens also can prosecute violators themselves. Unfortunately, it seems unlikely that many private citizens will go to this length in view of the costs and delays of court proceedings. Mr Rickles has hopes of enlarging his enforcement staff by thirty per cent, but the recent announcement by the City's Budget Bureau that five hundred jobs will be eliminated from the city payroll does not bode well for any hirings for some time to come.

SOFTWARE

Software in the Museum

from our New York Correspondent

TRADITIONAL conceptions and definitions of "art" have changed rapidly in recent years as artists have moved from their studios into "happenings", "earth projects" and other studies of natural and man-made systems. Art and technology have often been linked with the computer, providing a valuable if still unperfected tool. Computer art was first put on show at the Institute of Contemporary Arts in London (*Nature*, **219**, 550; 1968) under the suitably technological title of cybernetic serendipity. A recent exhibition at the Jewish Museum in New York City, which will be at the Smithsonian Institute in Washington from December 14 to February 14, has taken the interaction of artist and computer to another level.

In the words of the museum's curator, Jack Burnham, the goal of software, as it is called, "is to focus our sensibilities on the fastest growing area in this culture: information processing systems and their devices. . . . Software is not technological art; rather it points to the information technologies as a pervasive environment badly in need of the sensitivity traditionally associated with art".

The exhibits are less concerned with traditional aesthetic considerations than with the reaction of the observers to the ideas inherent in the projects. According to Mr Burnham, " 'Software' regards the perceived appearance of the art object as a fraction of the entire communication structure surrounding any art. Introspection rather than inspection is the point of the show. . . . The machines should not be regarded as art objects; instead they are merely transducers, that is, means of relaying information which may or may not have relevance to art".

At one end of the scale there are exhibits designed to show off new machines. A machine which translates into full colour any two or three dimensional object which can fit into its 8 by 10 inch format has obvious uses for anybody interested in a quick and simple process of colour reproduction. Another functional machine is the vision substitution system, developed at the Smith–Kettlewell Institute of Visual Sciences, Pacific Medical Center, Sen Francisco, to enable blind people to receive through their skin information which a sighted person would receive through his eyes.

Other projects are pure examples of information processing—teletype machines from news services which provide a continual record of news events or a solar audio window transmission that uses solar energy to enable visitors to pick up radio broadcasts by "listening" to the museum's windows. Yet other projects are more conceptual in nature, culminating in an event which carries happenings and auto-destructive art to their ultimate conclusion in these days of built-in obsolescence. A painter, John Baldessare, had all his paintings cremated by a mortuary and the ashes displayed with a commemorative plaque, saying "It is a reductive, recycling piece. . . . Will I save my life by using it ? Will a Phoenix arise from the ashes ? I don't know, but I feel better", the artist stated.

Although much of the exhibition suffered from technical failures and some projects seem to have little to offer either art or technology, the general concept of the show is relevant to the problems inherent in humanizing this mechanical age. Mr Burnham concludes, " 'Software' makes none of the usual qualitative distinctions between the artistic and technical subcultures. At a time when aesthetic insight must become apart of technological decision-making, does such a division still make sense ?"