relapse was more often allowed to proceed to an advanced stage before a further course of treatment was given, by which time the advantage conferred by the previous course had been lost. With busulphan, on the other hand, the advantage gained by the initial therapy was more often consolidated by maintenance therapy or by a further course at an early stage of relapse.

Thus, as used in this particular trial, busulphan therapy was clearly superior to radiotherapy on a number of important counts. While chemotherapy has the advantage of ease of administration, it must be emphasized that careful haematological control is essential. No patient should be treated with cytotoxic drugs unless adequate laboratory supervision is available. And, as the report stresses, busulphan therapy requires unrelenting vigilance. The prescription of pills is deceptively easy, but the potential dangers cannot be exaggerated. Apart from toxic depression of the bone marrow (with the attendant risk of aplasia), on which its therapeutic efficacy depends, busulphan may produce skin pigmentation and amenorrhoea. A more serious but rare side-effect is a peculiar wasting syndrome with features resembling Addison's disease and pulmonary fibrosis, but no cases of this kind were reported in the trial.

A Super Parasite

For many years we have been familiar with the idea that viruses are the supreme example of parasitism. Unable to perform most metabolic functions, they depend on the biochemical machinery of intact living cells and so are obligate intracellular parasites. What this entails in biochemical terms is now being unravelled.

Once stripped of its protein coat, the nucleic acid core of the virus provides instructions for the synthesis of a few proteins. One of these is a polymerase, an enzyme which is required to make more copies of the nucleic acid to be wrapped up finally in the new virus particles. It seems now that the otherwise mysterious eclipse, or silent phase, which follows the disappearance of a virus into a cell is partly occupied by the synthesis of these essential "early" proteins as well as the structural proteins. These proteins are made by means of the cell's ribosomes, which, in an uninfected cell, are constantly active, synthesizing new cell protein.

It appears that certain viruses when infecting certain cells are unable to perform even the limited functions required for the formation of new virus particles. Recently it has been shown, for instance, that human adenoviruses can multiply in monkey-kidney cells only if these are already infected with SV40 virus, a virus of monkeys which multiplies in the nucleus and does not destroy the kidney cell. Furthermore, the nucleic acid in the genes of the SV40 virus may be wrapped up in the protein coat of the adenovirus particle along with adenovirus nucleic acid, and thus be carried to further cells.[1-3]

[1] Huebner, R. J., Chanock, R. M., Rubin, B. A., and Casey, M. J., *Proc. nat. Acad. Sci. (Wash.)*, 1964, **52**, 1333.
[2] Rowe, W. P., and Baum, S. G., ibid., 1964, **52**, 1340.
[3] Rapp, F., Melnick, J. L., Butel, J. S., and Kitahara, T., ibid., 1964, **52**, 1348.
[4] Atchison, R. W., Casto, B. C., and Hammon, W. McD., *Science*, 1965, **149**, 754.
[5] Hoggan, M. D., Blacklow, N. R., and Rowe, W. P., *Proc. nat. Acad. Sci. (Wash.)*, 1966, **55**, 1467.
[6] Mayor, H. D., Jamison, R. M., Jordan, L. E., and Melnick, J. L., *J. Bact.*, 1965, **90**, 235.
[7] Blacklow, N. R., Hoggan, M. D., and Rowe, W. P., *Proc. nat. Acad. Sci. (Wash.)*, 1967, **58**, 1410.

This symbiotic relationship between adenoviruses and a member of another virus group is interesting enough, but it has now been found that there are viruses called adeno-associated viruses which can multiply only in cells already infected with adenoviruses.[4-6] They have also been called adeno-satellite viruses, because there are plant viruses, called satellite viruses, which behave in a similar way. They were first found as contaminants of laboratory stocks of adenoviruses. They are smaller in size, very stable, and can be separated out by centrifugation, but, like the adenoviruses, they contain deoxyribonucleic acid (D.N.A.). They are antigenically completely separate from adenoviruses, and by neutralization and complement-fixation tests four serotypes have been detected, but they can be propagated in tissue cultures only if these have been infected with adenoviruses. They might still be regarded as laboratory curiosities, possibly picked up from monkey cells, like the SV40 virus, except that good evidence has now appeared that viruses belonging to two of the three serotypes can infect man.

N. R. Blacklow and colleagues[7] have recovered six strains from specimens collected from children living in a residential home in Washington, D.C. They had previously shown that the sera of some children contained antibodies against adeno-associated viruses, and they then studied children who were known to have been infected with adenoviruses. They found that specimens collected from the children contained adeno-associated virus as well as adenovirus and that the children developed antibodies against both viruses. Children who had antibody against adeno-associated virus did not become infected. There was no mention that the adeno-associated virus infection gave rise to any symptoms, but it seemed as though some epidemics of it were occurring, for though these workers examined specimens collected during many months all the isolations were made in specimens collected in a short period of time. It is interesting that the adeno-associated virus infects man apparently only when he is already infected with an adenovirus, and this property prompts the question of exactly what it needs in infected cells which cannot be found in uninfected cells. Is it one of the early proteins? Furthermore, how many more such viruses are there and do they have any effect on man beyond providing an antigenic stimulus?

Stress Ulceration

Acute erosions of the gastric and duodenal mucosa have been noted to occur in association with a variety of conditions, including burns,[1-4] cor pulmonale,[5] myocardial infarction,[6] intracranial lesions,[7-9] and after surgery.[10 11] Use of the term stress ulcers suggests that any form of stressful situation might predispose to the occurrence of these lesions. Recently 61 patients who had a haematemesis or melaena due to acute ulceration which developed within four weeks of trauma, an operation, or an acute illness were studied.[12] The primary diagnoses varied greatly; apart from the associations already noted, they included pneumonia, pulmonary embolism, carcinoma, dehydration, and septicaemia.

It is, however, uncertain to what extent any particular condition is likely to predispose to acute ulceration. R. A. Davis and his colleagues[13] found the incidence of perforation or haemorrhage to be only 0.7% in a total unselected series of patients having neurosurgical operations, but the frequency rose to 2.5% in the 943 who underwent craniotomy. F. J. Flint and A. J. N. Warrack[5] reported a combined