

nervous diseases is in the fairly rare disease called progressive multifocal leucoencephalopathy. This is a disease with various neurological manifestations which often develop in other chronic wasting conditions. Inclusion bodies were sometimes seen, but it was not until electron microscopy was applied that a true picture emerged. When an old specimen of the brain in this disease was taken out of the formalin and then the nucleus of an affected cell was examined with the electron microscope by Dr Howatson and his colleagues in Toronto, they found numerous particles which, superficially at least, resembled the virus of warts—the papilloma virus.

The other main subject of interest is the tumour field. You have probably heard of Burkitt's tumour, the commonest neoplasm in African children. This is a rapidly growing tumour mostly of the jaw, and its distribution suggested that it might be of viral aetiology. No viruses could be found in the tissues themselves, but Dr Epstein in London has been growing the tissues from these tumours, and after a while particles appear which are similar to but not identical to herpes simplex virus. In this and several other human neoplasms, particularly leukaemia, there are an increasing number of observations of virus-like particles. Whether these are actually the cause of the disease it is very difficult to say, but the question is attracting more and more interest.

I will therefore conclude by suggesting that the prospects for antiviral drugs are dim but not hopeless, while the prospects for new virus diseases are excellent.

## DISCUSSION

**Dr Stanley Ellison** (*London*): In view of the enormous success of the poliomyelitis vaccine and the new introduction of a measles vaccine, why is not more work being done in producing vaccines against all virus infections?

**Professor Stoker**: One reason is that vaccines are not always safe. And a decision has to be made whether the risks of producing a vaccine and inoculating a large number of people outweigh the advantages to be gained from the vaccine. With poliomyelitis the advantages are at once obvious, and the risks—which were real risks—have gradually been dealt with. With measles vaccine the situation is not nearly so clear, and each

new vaccine that becomes available has to be assessed in this way. Measles and polio are two easy ones. When one comes to respiratory diseases the situation becomes much more difficult, largely because of the variety of antigenic types.

**Professor Grist:** Yes, this is very true. I do not know how many respiratory viruses there are—certainly a very large number. Then there are around a hundred in the enterovirus group. In the rhinovirus group, the common cold viruses, we have probably about 70 already and this number will probably rise to over 100. This is the sort of situation—a vaccine for the common cold? Well, which rhinovirus are you going to pick? Or how can we get a hundred or so different antigens into one vaccine? This obviously becomes extremely difficult. If you vaccinate against one or two out of the hundred which are equally active you cannot really see the difference. You cannot measure the effect on the population except in experimental groups. There is a considerable difficulty here and it seems logical to be a little selective and limit our objectives here to the small number of infections which we can define as being of sufficient clinical seriousness, and where we can effectively and relatively simply bring to bear a vaccine against the important virus or a small number of viruses which are causing all or most of this particular problem.

**Dr J. A. Kay (Stoke-on-Trent):** I wondered if the panel had any views why some of us, the fortunate ones, seem to be immune from virus diseases, at any rate clinically. This seems to apply to those in their middle years. Many of us went down frequently with virus illnesses as children, and many of our child patients still do this. But why should we become apparently immune? Have you any scientific evidence for this positive health?

**Professor Grist:** This would surely be the build-up through life of the sort of thing that one sees with measles, chicken-pox, the well known obvious sort of infections where you do not need a virologist to help you make the diagnosis. You start non-immune, you meet it, have your infection and then you are no longer susceptible, so you do not have that one again. So that one's early years, as you are all painfully aware, are very largely taken up with acquiring a large number of infections and developing a very wide immunity. Then later it becomes less and less frequent for one actually to contact a new one and catch a new infection. A very large number of virus infections, maybe a major proportion of them, do not even cause illness. So that one is acquiring immunity to a lot of things without necessarily manifesting obvious illness. But of course it is not by any means 100 per cent, and there is the problem of antigenic variation with viruses like influenza, so that the immunity to influenza that one built up some years ago is not much help when a new variant comes along. We are getting towards the end of the decade with the Asian A2 kind, so I guess we will be seeing an A3 and having a little more of a problem here before long.

**Dr H. A. Lang (Newton Stewart):** You mentioned IUDR in keratoconjunctivitis. Is it effective against the dendritic ulcer of herpes simplex, and if so, what is its availability and its dosage?

**Professor Stoker:** I told you I was an impractical virologist! I do not

know the dosage, I'm afraid. There are several papers on this subject and I think it is not too difficult to get at the dose. As far as the action of IUDR on dendritic ulcers is concerned, I do not think it is very effective against these, but I am not sure.

**Professor Grist:** I have no practical experience of it but I gather it is probably effective against the early acute superficial type, but it may even be harmful in the deep ones when the deeper layers of the cornea are involved. The toxic effects against the patient's cells in this situation may counterbalance the beneficial effects of acting against the virus. Also it does not seem to completely eradicate the virus, so it may not stop recurrences.

**Dr Ian J. Burns (Wick):** Dr Clarke said that we frequently meet patterns of disease which are obviously viral in origin but we could not put a name to the causative viruses. This struck a deep chord. Cannot we remedy this very readily? There is I imagine among professing virologists a very close chain of communication—they maintain a watching brief on the mutations of various viruses, some of them very dangerous. Then again, in our discussions among ourselves, though we may be hundreds of miles apart, we can spot that we are dealing with the identical pattern of one particular transient illness and we think this must be the same thing. I do not know of any way in which these two networks of communication touch each other. Could Dr Clarke comment on whether some change in the system of notifiable diseases might not be in order? There is a little thing that we all glance over in the *British Medical Journal* every week, showing us the statistics. But they are not about diseases that are very interesting as regards our everyday work. Is not there some organ in the medical press that can bring together our two pools of information about what is happening, what is changing—in other words, our ideas of the mutating virus and the virologists' ideas of what is happening. Surely there must be some meeting point somewhere in our medical press, or there should be?

**Dr Clarke:** As far as keeping abreast of the actual syndrome pictures that the viruses present to us is concerned, I think the only way one can really clarify ideas on this subject is to read articles as they come out. This is always difficult because the same pattern does not emerge always with the same virus. If you read an article, for instance, like this reprint from the collaborative study done by the Medical Research Council on these acute respiratory infections, it is obvious that the syndromes do not always correspond to the same viral infection. The pattern is a mixed picture right through. You can find the same group of viruses producing syndromes that are quite different clinically. But as far as correlation between the work done in the virus laboratory and by us in general practice is concerned, one quite useful practical point could be made. Because I have taken part in some of these surveys and worked with Professor Grist at Ruchill, I have been getting quite regularly from the laboratory a weekly handout that is an up-to-date picture of the returns that the laboratory gets, and I find this very interesting. You do not really get the same pattern of the week-to-week picture of illnesses in the community from the *British Medical Journal* when you have the little

scale of what is happening in the community at large, but this is a breakdown into the isolations that they have got from the west of Scotland, and this could very well be taken up by our Public Health Department. It is difficult to know what this would involve in more paperwork for them, but our medical officer of health might act as a liaison between the general practitioner and the virus laboratory for any doctors who are interested and see they are circulated with this sort of information. This is a point worth taking up.

**Dr J. L. Swanson (Kirkcaldy):** With regard to the collection and transference of samples to the laboratory, in Kirkcaldy we have a twice daily milk round of a van that calls at all the hospitals. I cannot think that Glasgow does not have something similar and that the difficulty of getting the samples to the laboratory is rather a question of what the laboratory can handle than the lack of a van to go round the hospitals.

## SIXTH SESSION

### OBESITY IN ADULTS AND CHILDREN

**Chairman:** Obesity is the commonest nutritional disorder in all highly developed countries, I suppose. The public in our own country are perhaps not so alive to its dangers as people in the States, but everybody here knows all about the increased mortality and morbidity rates associated with obesity. Then there is the highly complex but in some ways simple method of treatment. It is a great problem to the general practitioner, and some patients do not seem to be able to do much about it. I always like the story of the American patient who said, "I just feel there is something eating at me and I have just got to eat back".