

The virus isolated by Negroni from patients with leukaemia was not identified, but if its growth *in vitro* was limited to human-embryo cells it is unlikely to be a reovirus of the type isolated by Bell and his colleagues, since this was cytopathogenic for a wide range of cells in culture. Further studies on the possible tumour-producing capacity and the natural history of both Negroni's virus and the reoviruses are now urgently needed. Meanwhile we must agree with Dr. Bell and his colleagues, as we did previously with Dr. Negroni,<sup>1</sup> that it is too early to make any assumptions about an aetiological role for these viruses in human tumours. To extend our previous analogy—passengers are more common than drivers.

## Cruelty to Order

A remarkable psychological experiment recently reported by S. Milgram<sup>12</sup> shows how ingrained habits of social conformity and submission to authority can lead normal people to behave in some circumstances with inhumanity. He recruited 40 volunteers, all men, who believed they were to take part in an experimental study of memory and learning. The experimenter interviewed each volunteer and, with him, an accomplice masquerading as another volunteer. He told the two of them that the intention was to investigate the effects of punishment on learning, and in particular the differential effects of varying degrees of punishment and various types of teacher. The drawing of lots to be teacher or learner was rigged so that the volunteer was always the teacher and the accomplice the learner. The accomplice was strapped into an "electric chair" apparatus, and the teacher was then taken into an adjacent room and placed before a complex instrument labelled "Shock Generator." This included many features to enhance its apparent authenticity, including an ability to deliver a mild shock to the teacher.

A row of thirty switches on the "shock generator" were labelled from 15 to 450 volts by 15-volt steps. In addition groups of switches were verbally labelled from "slight shock" to "danger: severe shock." Following instructions, and in the context of a mock learning experiment, the teacher was led to believe that he was administering increasingly more severe punishment to the learner, who made prearranged responses, including indications of distress and refusal to co-operate further when the apparent shock reached the 300-volt level. Nevertheless, the teacher was verbally encouraged, and even ordered, to proceed right up to the maximum level of voltage.

Contrary to all expectations as many as twenty-six of the forty subjects completed the series. Only five refused to carry on after the victim's first protest. Many continued, though they experienced considerable emotional disturbance, as clearly

<sup>1</sup> *Brit. med. J.*, 1964, 1, 921.

<sup>2</sup> Negroni, G., *ibid.*, 1964, 1, 927.

<sup>3</sup> Inman, D. R., Woods, D. A., and Negroni, G., *ibid.*, 1964, 1, 929.

<sup>4</sup> *Ibid.*, 1964, 1, 321.

<sup>5</sup> Burkitt, D., *Viruses, Nucleic Acids and Cancer*, Seventeenth Annual Symposium on Fundamental Cancer Research, Houston, Texas, 1963, page 615. Williams and Wilkins, Baltimore.

<sup>6</sup> Davies, J. N. P., Elmes, S., Hutt, M. S. R., Mtimavalye, L. A. R., Owor, R., and Shaper, L., *Brit. med. J.*, 1964, 1, 259.

<sup>7</sup> *Ibid.*, 1964, 1, 296.

<sup>8</sup> Edington, G. M., and Maclean, C. M. U., *ibid.*, 1964, 1, 264.

<sup>9</sup> Andrews, C., *Viruses of Vertebrates*, p. 45, 1964. Baillière, Tindall and Cox, London.

<sup>10</sup> Gornatos, P. J., and Tamm, I., *Proc. nat. Acad. Sci. (Wash.)*, 1963, 49, 707.

<sup>11</sup> Burkitt, D., *Brit. med. J.*, 1962, 2, 1019.

<sup>12</sup> Milgram, S., *J. abnorm. soc. Psychol.*, 1963, 67, 371.

shown not only by their spoken comments but by such signs as profuse sweating, tremor, stuttering, and nervous laughter. Their continuance certainly did not represent indifference to the victim's distress, but indicated the outcome of conflict between humane reaction to this distress and the desire to continue to co-operate with the experimenter.

Milgram discusses his findings in terms of psychological mechanisms of obedience, which are essential to social life but which may be exploited by unscrupulous leaders: the example of Nazi Germany comes readily to mind. He has devised a laboratory situation which certainly seems relevant to such gross abuses of power, and his further experiments in which many aspects of the situation will be systematically varied may throw considerable light on the processes involved. Moreover, inhumane actions do not always serve evil purposes, and these experiments are equally relevant to behaviour like that of the devoted researcher who is led to inflict unjustifiable pain or indignity on his subjects. It is ironical that the experiments themselves might make some experienced workers uneasy about the ethics of the deception practised on the volunteer "teachers."

## Idiopathic Thrombocytopenic Purpura

Essential or idiopathic thrombocytopenic purpura (I.T.P. or Werlhof's disease) is a disorder in which spontaneous bleeding or bruising associated with purpura is found.<sup>1,2</sup> It may occur at any age but is most common in children and young adults, and females are affected more often than males. The number of platelets in the blood is reduced and sometimes anaemia is present as well; examination of the bone-marrow shows a normal or increased number of megakaryocytes. No physical signs other than those due to anaemia and thrombocytopenia are found, and the spleen is rarely enlarged.

G. Meshaka and his colleagues<sup>3</sup> have recently studied 147 patients who showed the usual distribution by age and sex. There were 18 cases of acute I.T.P. (a clinical course of less than a month), 22 cases of subacute I.T.P. (one to three months) and 90 cases of chronic I.T.P. (greater than three months). Intermittent or unclassified purpuras accounted for the remainder. The onset of acute I.T.P. was usually in the winter or spring; chronic I.T.P. started chiefly in summer; while subacute cases occurred throughout the year. This would suggest that each type has a different cause. The mode of onset was helpful in prognosis; a fulminating onset was common in acute I.T.P., whereas a slow onset with petechiae, epistaxes, and menorrhagia characterized the chronic form.

Eight cases of intermittent purpura were described and in one of these cyclical purpura occurred every 28 days. Irregular intermittent purpura mainly affected children and varied considerably in its duration and severity. Ten patients (6.8%) died in the series reported by J. Bernard and his colleagues<sup>4</sup>; all of these were females, and two had associated autoimmune haemolytic anaemia and one had hypogammaglobulinaemia. This compares with a mortality of 16% before corticosteroid therapy.<sup>5</sup>

I.T.P. in pregnancy is a serious complication and may affect both mother and child.<sup>6</sup> Purpura may occur in babies born to mothers who are apparently normal, but whose sera probably contain antibodies against the infant's platelets.<sup>7</sup>