patients over a long period of time, and that a large number of lesions in a small number of patients studied over a short period of time is of limited value. In our own cases we feel the need for standard lesions, in a large number of patients, followed up for at least one year before any conclusions will be reached as to the applicability of any particular lesions combination.

Finally, Dr. Laitinen's series of cases suggests a high incidence of schizophrenia, presumably with tension and anxiety as the most disabling symptoms. It must be quite clear, however, that this operation is not a cure for this condition.

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HEPATITIS-ASSOCIATED ANTIGEN IN HEPATOMA IN SOUTH VIETNAM

SIR,—Recent reports [1-5] have provided data on the incidence of hepatitis-associated antigen (H.A.A.) and alpha-fetoprotein (A.F.P.) in patients with hepatocellular carcinoma in Asia and have pointed out the need for further studies on the subject.[4] In Singapore, 3% of 114 patients with hepatomas had H.A.A.,[1] 5% of 19 in Japan,[2] 63% of 11 in India,[3] and 80% of 55 in Taiwan.[4] The percentage of these patients with A.F.P. has been reported as 58% of 55 [4] and 93% of 15 patients [5] in Taiwan, and 66% of 114 in Singapore.[1] We have had the opportunity to obtain some preliminary data in the Republic of Vietnam. 26 patients with hepatocellular carcinoma were seen in two hospitals in Saigon during a 4-month period. The diagnosis was made by liver biopsy in 11 patients and on clinical findings in the remaining 15. As in Africa,[6] the accuracy of a clinical diagnosis of hepatoma in Vietnam is quite good. There were 17 men and 9 women aged 15 to 71. 23 were Vietnamese, 1 Vietnamese-Chinese, and 2 Chinese-born in China. The control population consisted of 47 blood-donors and 15 hospital patients seen during the same period. H.A.A. was tested for by an immunoelectro-osmophoresis method,[7] and A.F.P. by counter-immuno-electrophoresis.[5] H.A.A. was not found in any of the patients with hepatocellular carcinoma but was present in 8 of 62 controls (11%). In the single previous report on the incidence of H.A.A. in the Vietnamese population, 8 of 128 (6%) were positive.[8] A.F.P. was present in the blood of 11 out of 26 (42%) of those with hepatomas (55% of patients with a tissue diagnosis and 40% with a clinical diagnosis) and was not found in any of the 62 controls.

It would appear, from these preliminary studies, that in South Vietnam, as in Singapore,[1] hepatocellular carcinoma is not associated with an increased frequency of H.A.A.

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LABORATORY INFECTIONS WITH LOUPING-ILL VIRUS

SIR,—Severe symptoms of encephalitis have been described in laboratory workers with louping-ill virus infections, but in other cases there was no evidence of neurological involvement, diagnosis being based on clinical assessments and retrospective serological data.[1-4] We wish to describe 3 mild cases, in 2 of which diagnosis was confirmed by virus isolation from blood during the viræmic phase.

Case 1.—A man of 29 pricked a finger with a hypodermic needle and syringe containing about 10^6 plaque-forming units per ml. of a recent virus isolate (SB.526). The patient was febrile from day 7 to 11, and transient unilateral swelling of the cervical lymph-nodes developed the following week. No overt neurological symptoms were recognised.

Case 2.—A man of 56 cut his hand while dissecting a mouse that had been inoculated with a laboratory strain (L.I.31) of virus. He became febrile 5 days later and headaches developed 2 days after that. The fever and mild headaches persisted to day 11 after exposure.

Case 3.—A man of 57 had influenza-like symptoms and ophthalmodynia 8 days after using a homogeniser to macerate nervous tissue from mice infected with the L.I.31 strain of virus. He remained at work despite attacks of shivering for a further 9 days. The true nature of his condition was suspected after onset of diplopia, uncoordination, vomiting, anorexia, and severe diarrhœa. He was confined to bed 10 days after onset of symptoms, and had a short period of delirium 4 days later.

VIRÆMIA AND SERUM-ANTIBODY RESPONSE IN LABORATORY INFECTION WITH LOUPING-ILL VIRUS

Case	Days after exposure	Viræmia (p.f.u. per ml. of serum)	Serum H.I. antibody (IgM+IgG)	Serum H.I. antibody IgG
1	88	118	0	0
	11	11	0	0
	16	0	0	0
	23	0	80	20
	29	N.D.	160	10
	57	N.D.	80	80
2	7	20	0	0
	12	0	0	0
	18	0	80	80
	29	N.D.	320	320
3*	18	0	640	320
	47	N.D.	160	80

Serum antibody titres are expressed as reciprocals.
0=No virus isolated or antibody detected.
N.D.=Not done.
* No antibody was detected in a routine serum sample taken 10 months previously.

All patients complained of feeling dull for a further 2 to 3 weeks. Case 3 was by far the most severely debilitated. They were encouraged to rest and returned to work after a further convalescence of 3 weeks. No subsequent symptoms developed.

Concentrations of louping-ill virus in serum were determined by plaque assay under sodium carboxymethyl cellulose, in preformed monolayers of a pig-kidney cell line (IB/RS2/clone 60). Titres were expressed as plaque-forming units (p.f.u.) per ml. and confirmed by plaque neutralisation with immune sheep serum. The virus was identified using a direct fluorescent test [5] to demonstrate infected cells in tissue cultures inoculated with serum 24 hours previously. Antibody was titrated by both the hæmagglutination inhibition (H.I.)[6] and complement-fixation (C.F.)[7] tests. Sera were also treated with 2-mercaptoethanol,[8]

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which inactivates IgM, and residual H.I. activity due to IgG was measured.

The results of these virological and serological studies are given in the accompanying table. In the first 2 cases a rapid specific diagnosis was made by demonstrating circulating virus during the febrile stage of the disease. Serum-antibody was not found until over a week later. Both H.I. and C.F. antibodies were detected at the same time, but H.I. titres were greater by a factor of 2. In the first case a significant amount of H.I. antibody was IgM, while in the others the majority of activity was due to IgG.

Early diagnosis was of considerable value, since patients could be persuaded to rest completely. The most severe symptoms in this and other series of cases [3] were in patients who continued normal activities. Virus isolation should be attempted in all laboratory workers who become febrile after suspected exposure to louping-ill virus.

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FALL IN CARBON-MONOXIDE BLOOD LEVELS AFTER STOPPING SMOKING

SIR,—In a study of carbon-monoxide blood levels in 10 patients before and after they had stopped smoking (after attending an anti-smoking clinic) blood was always taken at 10 A.M. daily, when the quantity smoked and inhaled could only be a fraction of the daily dose of tobacco. In the accompanying table, therefore, zero HbCO levels are recorded as having been reached after a whole number of days.

These results show that the carbon-monoxide level very quickly falls to zero, supporting the view that the concentration of HbCO in non-smokers is zero and that it is *exclusively* due to smoking that people are contaminated with carbon-monoxide (and also passive smokers). Other alleged sources of pollution, such as the exhaust gas of cars, should not be blamed.

Attempts to change the smoking habits of cigarette smokers by exempting cigars, cheroots, and pipe tobacco from taxation are to be resisted, since these types of tobacco contain more carbon-monoxide than cigarettes. Such a move must be viewed with concern in the light of a growing appreciation of the danger of carbon-monoxide as a contribution to early arteriosclerosis and thrombosis.[1,2]

The instant fall in HbCO levels even in heavy smokers proves the value of medically supervised anti-smoking clinics, which, to my mind, should be linked with hospitals with resources for research work.

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TREATMENT OF MALNOURISHED CHILDREN

SIR,—I feel that Dr. Khan (Jan. 8, p. 90) has partly misinterpreted your editorial of Nov. 13 (p. 1074). I did not receive the impression that you intended to discourage the building of new pædiatric hospitals in developing countries. On the contrary, your reference to the fact that the present number of pædiatric beds in such countries was far exceeded by the number of severely malnourished children alone, not counting all other pædiatric needs, showed that you were well aware of the disparity between need and supply. The grossness of this disparity is illustrated by the fact that in many countries deaths of children under 5 years account for over 40% of total deaths, and yet rarely do children under 15 years have as much as 20% of all beds (excluding psychiatric) allocated to them, even if we allow for beds in general hospitals given over to children. If we count beds in pædiatric specialist wards and hospitals, these often account for less than 5%.[1] This is really an injustice to a minority, and I am sure most of us would advocate that it be remedied.

You were concerned about the ineffectiveness of most hospital treatment of severe malnutrition both in respect of mortality within hospital and progress, or lack of it, after discharge, especially when compared with the results obtained by under-5 clinics or nutrition rehabilitation centres, even with children of similar degrees of malnutrition. What you were advocating (i.e., treating all children with protein-calorie malnutrition, except for unusually complicated cases, at under-5 clinics or nutrition rehabilitation centres) would spare the pædiatric hospital and wards of much of their present burden, and thus make a contribution to the availability of beds by freeing them for other pædiatric conditions. (One thinks, for example, of the appalling toll levied by osteomyelitis needing but not receiving inpatient surgical treatment.)

If we hope that a reasonable number of newly qualified doctors will return eventually to the provinces from which they may have come in the first place, would it not be better to teach medical students and nurses, for a larger part of their course than at present, in the rural areas, in ordinary district hospitals, maternal and child health clinics, and nutrition rehabilitation centres ? Better for them to get over the culture shock early, and for some to be inspired at a critical stage in their studies, than to emerge from hospital with eyes firmly fixed on the gleaming stainless steel of specialist hospitals or the lucrativeness of private practice in the capital.

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EFFECT OF STOPPING SMOKING ON HbCO BLOOD LEVELS

Patient and age (yr.)	Smoking history (yr.)	Type of smoker (yr.)	Daily consumption	$HbCO_1$	Zero HbCO reached after (days)
Male (44)	24	Heavy for 15 yr.	12 cheroots	5%	4
Male (52)	More than 35	Heavy for 35 r.	More than 20 cigarettes ..	10%	15
Male (10)	3	Light for 3 yr.	4 cigarettes	?	4
Male (50)	35	Heavy for 15 yr.	30 cigarettes	9%	8
Male (43)	More than 25	Heavy for 25 yr.	40 cigarettes	9%	74
Male (43)	25	Light for 10 yr.	4 cheroots	4·5%	60
Young physician	More than 3	Heavy >3 yr.	20 cigarettes + pipe + cheroot	13%	30 (stated by patient)
Young physician	More than 3	Moderate >3 yr.	8–10 cigarettes + 2 cheroots	6%	30 (stated by patient)
Male (35)	21	Heavy for 8 yr.	30 cigarettes	1%	14
Female (65)	45	Moderate for 45 yr.	10–20 cigarettes	4%	21