

## Correspondence

*Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.*

### Educating the Public about Cancer

SIR,—In Mr. M. Donaldson's letters (March 22, p. 655, and June 14, p. 1301) there seems to be some confusion between on the one hand ideas, assumptions, or views, and on the other evidence of a more factual character and the only reasonable conclusions that are justified by that evidence. After all allowance is made for the frailties of vital statistics, the maintenance of uniform levels in age-specific breast cancer mortality rates over 20–25 years in areas with and without "control" programmes, with and without the provision of extensive diagnostic and treatment facilities, with and without cancer "education," and with and without demonstrated shifts to early treatment shows clearly, without any questionable assumptions or ambiguity, that such early treatment failed to prevent any appreciable amount of mortality. When this finding is considered along with the cause of most of the failures—the later development of remote metastases spread before treatment but not manifest at the time—and with all other relevant factors, the only logical conclusion to be drawn is that in the vast majority, at least, of lethal breast cancers blood-borne spread of remote metastases occurs before the primary lesion becomes detectable. These findings and conclusion are not assumptions, views, ideas, feelings, or beliefs.

It is rather in the claims for superiority of early treatment that assumptions, conceptions, and ambiguity are found. In *J. Amer. med. Ass.* (1952, **148**, 1007) Dr. S. W. Harrington, of the Mayo Clinic, reiterates that "the rationale for radical surgical treatment is that the malignant lesion is localized at the onset and later in the course of the disease invades other tissues by transmission through the lymph stream and occasionally through the blood stream. If this conception of the disease is correct, the most important considerations in treatment are early recognition and immediate complete removal of the diseased tissues." But neither Harrington's analysis of cases nor any other evidence to date provides entirely conclusive proof of the validity of the conception in so far as it is applicable in efforts to control mortality; some of the evidence is patently fallacious and all of it can be reasonably and consistently interpreted as indicative of natural selection rather than as indicative of superiority of early treatment. Thus, the findings and conclusion from the age-specific mortality rates do not clash with any established fact. On the contrary, they are fully compatible with findings coming from pathological laboratories and clinical experience as referred to elsewhere (*Surg. Gynec. Obstet.*, Chicago, 1952, **94**, 173). And the clash between the high survival rates claimed for early treatment and the persistent uniform level trends in age-specific mortality rates is readily explained by the limitations of histopathology—the inability to distinguish between tumours with and without metastatic propensities, as emphasized by competent histopathologists, and clearly indicated, too, by all the efforts to find a better basis for prognosis in grading, staging, tissue culture, animal inoculation, etc. The term "microscopically proved" has limited and sometimes little significance.

The test which Mr. Donaldson proposes in his last sentence, has already been made, not intentionally (because the value of early treatment was generally accepted), but nevertheless adequately. The lack of any variation in the trends of mortality rates in spite of the varied experience of the past 20–25 years, considered in conjunction with the evidence from other fields, has given the answer. Clearing fallacies from the field should assist in the research for which Mr. Donaldson makes a plea (*Lancet*, 1952, **1**, 1206).

There is no need, I trust, to point out that age-specific rates, unlike the rates for all ages combined, are practically free from the influence of ageing populations.

It is not feasible to present and discuss here all the findings in regard to cancers of other sites. Suffice it to say that the most sweeping claims were made for breast cancer because, of all major cancer, the breast is the most accessible site for early diagnosis and for early and extensive treatment by all the rival techniques. The findings for cancer as a whole have been dealt with, however, in the reprints which have already been forwarded to Mr. Donaldson.—I am, etc.,

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N. E. MCKINNON.

### Theory of Cancer Treatment

SIR,—Dr. F. M. Lehmann's interesting letter (June 14, p. 1301) on the subject of cancer treatment is evidently intended to draw attention to the fact that in the radiotherapy of cancer stromal reactions are often of greater importance than the direct effects of the radiation on the cancer cells.

In proposing that attention should be focused almost exclusively on the stromal effects of radiation Dr. Lehmann, in my opinion, gives a very distorted picture of the cancer process and of the nature of cancer. His argument rests upon the contentions that the cause of cancer is a breakdown of the inherent "co-ordinating mechanism" controlling normal growth and repair; the specific cancer cell is a myth; in various parts of the body cells can be found which resemble *in every respect* those which are found in tumours; cancer cells are not aggressive; and the stroma is a measure of nature's resistance. Most of these contentions are clearly refuted by experimental work on animal tumours, to deny the relevance of which would be to deny the essential similarity of the biology of cancer in man and in animals.

The evidence that the cancer cell carries within itself the full propensities of the disease is considerable in volume, and the following are some examples:

(1) As few as 20 sarcoma cells are sometimes capable of giving rise to a fatal tumour on transplantation from one mouse to another of the homologous strain; leukaemia has been transplanted with a single cell.

(2) Normal cells have been rendered malignant in tissue culture by the action of chemicals or viruses.

(3) Many tumour cells have distinctive cytological features by which they can be distinguished from normal cells. The cytological diagnosis of cancer in certain fields is a recognized procedure.

That cancer cells are aggressive, which Dr. Lehmann denies, is obvious from their power to infiltrate and destroy normal tissues. The stroma, far from being the measure of Nature's resistance, is evidence of the host's helplessness, since it provides the generous blood supply demanded by the tumour. Tumour grafts evoke a blood supply from the host even more rapidly than grafts of normal tissue, and some workers have defined this power as the essential one by which the tumour gains its supremacy over the host.

It remains true that cells in mitosis are specially sensitive to radiation, and that, in general, rapidly growing tumours are more sensitive to radiation than slowly growing ones. It is more reasonable to regard the stromal effects of radiation not as stimulation of a natural defensive reaction but as coincidental side effects which happen to further the radiotherapist's intentions.

It is interesting to reflect upon the implications of the fact that cancer most often arises when the reproductive age is declining or has passed. In these circumstances it seems unlikely that a defensive mechanism of a specific character could have been perfected in the course of evolution through the agency of evolution. Our ideas will therefore be more in accordance with the "natural history" of the disease if we refrain from any firm belief in the body's natural defences against cancer.—I am, etc.,

London, S.W.1.

HAROLD B. HEWITT.

### Prophylaxis of Tetanus in Public Schools

SIR,—Among the anxieties inherent in the duties of a medical officer to a public school it is probable that the possibility (admittedly remote) of the occurrence of a case

of tetanus is always something of a nightmare. Especially is this so in boys' schools, as wounds and injuries are relatively more frequent and more severe, particularly in the rugged term.

The whole question of serum reactions and serum sensitivity tests has been discussed with great clarity and usefulness by Drs. L. J. M. Laurent and H. J. Parish in the Refresher Course (June 14, p. 1294), and their article has stimulated me to put forward a suggestion that a new procedure might be well worth while in the prophylaxis of tetanus and the avoidance of anaphylaxis, for these two problems are so interrelated that they must be considered together.

Active immunization by tetanus toxoid is accorded a general blessing in the *Public School Handbook of Communicable Diseases* issued by the Medical Officers of Schools Association, but, so far as I am aware, few schools actively encourage it. Therefore, in the questionnaire it is usual to send out before entry to school, it appears to me that information should be asked specifically about a previous history of asthma, infantile eczema, or a previous dose of serum, and where a positive answer is returned it is justifiable to urge that active immunization should be carried out and that a certificate to this effect be produced on entry to the school. Alternatively, permission should be asked for the medical officer to carry out such immunization after entry. In the event of refusal of such advice one might reasonably feel a sense of relief from responsibility in case of any untoward event. It would also constitute a positive policy, and I think a reasonable one, for dealing with a somewhat vexed and thorny problem.—I am, etc.,

Mill Hill School, N.W.7.

A. H. MORLEY.

### Bilateral Phaeochromocytoma

SIR,—A woman aged 29 was admitted to hospital on February 28 in a state of coma. She was married, with two children. The history obtained from the husband was :

On the morning of admission, and all of a sudden, the patient vomited about two pints (1 litre) of dark brown fluid and then collapsed and lost consciousness within a few hours. For the last two years she had been complaining of paroxysmal attacks of severe headache on and off, but she had never seen a doctor. During the last two months she had had some pain in the lower back, more towards the right side. Apart from this she had never had any other complaints. Her appetite was good, the bowels regular, and there was no urinary trouble. There had lately been some gain in weight.

There was nothing relevant in the past illnesses or family history.

On examination the patient was found to be deeply in coma, dyspnoeic, cyanosed, and with cold clammy skin. The pulse was imperceptible and the blood pressure could not be measured. The pupils were markedly dilated, equal, and not reacting to light. Reflexes were absent everywhere. Heart sounds were very weak and there were fine moist crepitations all over the chest. As the patient was in a terminal state, complete and thorough examination was almost impossible. She was given oxygen and nikethamide, but she died within half an hour of admission.

At necropsy the stomach showed some congestion, with small petechial haemorrhages. The right adrenal gland was replaced by a large spherical tumour, reddish brown in colour, weighing 43 g. and measuring 12 by 10 by 9 cm. Microscopically the tumour was composed of cells which varied greatly in size and shape, but tended to be polygonal: the cytoplasm was eosinophilic and the nuclei were sharply demarcated and contained abundant chromatin. Many cells contained several nuclei, and some cells contained a large bizarre, folded nucleus. No mitoses were seen. The tumour was richly vascular and showed capillaries and sinusoidal blood spaces, forming a stroma for the cells, together with a delicate connective tissue. The tumour was encapsulated. The appearance was that of a typical phaeochromocytoma. The left suprarenal contained a small ovoid tumour, pale yellow in colour, measuring 2½ by 1½ by 2 cm. and weighing 16 g. Microscopically it had a

similar structure to the first, and remnants of normal adrenal cortex were visible at one pole. The thyroid showed alveoli distended with pale-staining colloid. Other organs were found to be normal.—I am, etc.,

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ALBERT FAHMY.

### Social Trends and Home Confinements

SIR,—Professor Dugald Baird writes (June 7, p. 1246) that in Aberdeen the stillbirth rate was found to be 30% greater at home than in hospital, and he offers the greater safety of hospital as a reason against any increase in domiciliary midwifery. Dr. W. N. Leak has already suggested (June 21, p. 1352) that the findings in Aberdeen are not generally applicable, and we should like to draw Professor Baird's attention to the following figures, which appear to confirm Dr. Leak's view. They relate to pregnancies occurring among the inhabitants of a West Country city in 1949, 1950, and 1951, and they compare the results of delivery in hospital with those achieved in the home by the district midwives and general practitioners.

	Deliveries	Stillbirths	
		Cases	Rate per 1,000 Births
Domiciliary ..	1,484	32	21.3
Hospital ..	1,749	39	22.0
All cases ..	3,233	71	21.8

This shows little difference in the stillbirth rates, but the two series are not strictly comparable, if only because the proportion of primiparae is 24% in the home and 50% in hospital. The rates for primiparae and multiparae separately are:

	Stillbirths per 1,000 Total Births	
	Primiparae	Multiparae
Domiciliary ..	29.3	18.5
Hospital ..	23.7	20.0
All cases ..	25.5	19.1

This does indeed show a 23% higher rate among the primiparae delivered at home, but if it had been possible to admit all these primiparae to hospital the actual number of stillbirths avoided would have been only two or three, and the 365 patients involved would have needed four beds and cots for the whole of the three-year period.

It is important to know the reason for this difference in primiparous stillbirth rates before suggesting a remedy, and, if the results of forceps delivery are any criterion, it is clearly not due to the inability of the district to deal with mildly abnormal cases. The stillbirth rate after forceps delivery is virtually the same at home as in hospital:

	Primiparae Delivered	Forceps Rate		Stillbirths After Forceps	S.B. Rate per cent. After Forceps
		Cases	%		
Domiciliary ..	365	32	8.7	2	6.2
Hospital ..	875	68	7.7	4	5.8
All cases ..	1,240	100	8.0	6	6.0

The unbooked B.B.A. never mars hospital stillbirth rates, and patients who try to conceal their pregnancies are mainly a district problem. In this series 11 district primiparae had stillborn babies, and these 11 included one premature B.B.A., and a full-term B.B.A. whose mother did not announce either her pregnancy or labour until birth had taken place. Moreover, these 11 include only four babies which were over 4½ lb. (2 kg.) in weight, a much lower proportion than in the hospital series. If gross prematures and unbooked B.B.A.s are excluded from both series, the district stillbirth rate for primiparae falls far below that of the hospital:

	Primiparae Delivered	S.B.s	Gross Prems and Unbooked B.B.A.s	Remaining Stillbirths	S.B. Rate per 1,000 Births
Domiciliary ..	365	11	8	3	8.1
Hospital ..	875	21	8	13	14.7