kept coming up painfully in my left upper abdomen as if there were a pair of bellows left inside. By the time that I had been readmitted to hospital for Christmas and the surgeon said that I had a subacute obstruction that could be cured by a further operation, my only feeling was relief at what earlier that month would have been unthinkable. After four pints of blood I felt well, and the second operation was not too bad at all. After it, however, I developed a high pyrexia of unknown origin for a week, which did not respond to parenteral antibiotics but disappeared magically with the sudden discharge of 300 cc of bile-stained pus from the abdominal drain.

Later I became anaemic again and required several transfusions, but I was told this was temporary bone marrow shut down that happened after intra-abdominal infection, and I was never too worried about this, once sternal puncture had shown nothing malign.

The worst part of what stretched to five months off work was the constant pruritus, particularly affecting the back. Local antipruritics and antihistamines were ineffective, but it was cured through what I regard as a brilliant clinical hunch that it might be due to zinc deficiency. The professorial unit of my own hospital turned out to be interested in trace metals, and there was no difficulty in obtaining a serum zinc estimation. This was very low, and the itching was cured after taking simple zinc sulphate capsules twice a day for a fortnight. After three months back at work, the final operative repair of an incisional hernia with three days in hospital was almost an anticlimax.

The future

And now—I am thin and at last not a freak and likely to stay normal. I will not always be getting fatter every year. I have pain sometimes and frequent steatorrhoea—especially if I eat too much. I get night cramps unless I watch my calcium concentration carefully: otherwise I am well, and it is no great nuisance to take pills twice a day—potassium, calcium, magnesium, zinc, iron, multivitamins, and vitamin D—nor is it a nuisance to have blood tests once a month.

What have I, as a doctor, learnt from this period of illness? Firstly, I never doubted the cleverness of physicians, but I have been lucky to be looked after by surgeons who are different certainly from those I knew years ago. They are exceptional in having a capacity for empathic understanding of what I might feel or want to know, and I cannot thank them too much.

Secondly, I have learnt that, for the patient, nurses are almost as important as doctors. While junior nurses in one hospital seemed frightened of me and seemed to stay away, I noted how much happier I was in a different smaller hospital later, where the nurses took looking after a consultant in their stride.

Would I have had it all done if I had known of the complications there would be? The answer to this is probably yes, but I must end with a feeling of gratitude that, as a patient, I did not know in advance exactly what was to happen!

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Letter from . . . Sri Lanka

Beetle marasmus

S RAJAPAKSE

The study of the natural history of disease in a spirit of clinical detachment and of cultural isolation from the affected indigenes was fashionable when the pioneers of tropical medicine made their first conquests. Today, this privileged perspective is, perforce, denied to doctors of the Third World. It is difficult for the latter to achieve the kind of objectivity which finds it both necessary and sufficient to separate the hard data of the disease-process from the life-style of the diseased person.

Dung-beetle infestation of the gut—in little children particularly—is quite common in Sri Lanka. That the developmental stages of certain beetles (*Scarabaeoidea*, *Coprinae*) can survive and even complete their life-cycle in the human intestinal tract is no more than a clinical and parasitological curiosity to the physician-naturalist of the West. We find the condition dismissed in the learned tomes on the subject as an example of “pseudoparasitism” arising from the accidental ingestion of the embryonic stages of these insects.

This is a lean view of a richly structured phenomenon. An extraordinary catenation of factors—including parasite logistics on the one hand and aspects of social life among Sri Lankans

on the other—seems to promote this bizarre association between man and beetle. What follows is a discussion—necessarily superficial—of the “ecological interface” between these two species.

Kurumini mandama

The scarabs are quite common in this country. Thanks to the assiduous attention of members of this tribe, it has been observed that substantial faecal masses are reduced overnight to loamy accumulations not very different from the “castings” of the larger types of earthworm found in the tropics. This transmutation of messy excrement into seemingly innocuous soil by the busy coleopteran is not without epidemiological importance. Precinct sanitation in our towns and villages takes the form of a daily sweeping of the “lot”—a characteristic early morning chore of the women of the household. Thus the “handiwork” of both the dung-beetles and of the ubiquitous earthworms, while being laid low by the careful housewife, is widely disseminated in terrain adjacent to the dwelling-place. The mixed soil is now the pabulum for a host of scatophagous species.

The picture must be completed by introducing the naked Third-World child gambolling on this compromised ground. In a flow-chart of the village ecosystem, the alimentary pathway

Aluthgama, Sri Lanka

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of the child must surely be important. Undesigned admission of arthropodan stages is a factor in the life system of the rural child.

The scenario sketched above would be of theoretical interest only if the infestation remained cryptic. There is, however, a certain flamboyance in the "get-away" of the insects which makes it difficult to ignore the condition. Indeed, the existence of a specific epithet in the native languages to denote this condition—*kurumini mandama*—bespeaks of its antiquity as a locally recognised clinical phenomenon. The native appellation—"beetle marasmus"—is both euphonic and descriptive. The patient is commonly a preschool child. The anxious parents relate a tale of beetles "zooming away" from the newly passed stool. There is some shame-faced reluctance to give the details—for, in Sri Lanka, a literate rural population has understanding and respect for sanitary principles. The belief that cleanliness correlates with social class is widely prevalent. Hence, the confession that beetles—an object of revulsion and even superstitious dread in these parts—inhabit the alimentary system of one's offspring is not lightly undertaken. It is worth remarking that a contrast is offered here between the Western and Eastern victims of disease. While the former regard disease as a malfunctioning of the body mechanism which must be "put right" by doctors, the latter see disease as the mark of "existential unworthiness" or as a species of retributive punishment. This philosophical difference perhaps lies at the root of the notorious Eastern apathy in matters medical. It also accounts for Western querulousness in this sphere.

The beetles break free from the emerging stool and fly off in spectacular fashion. Apparently, this noisy launch of a group of insects at the moment of egestive climax, alarms the child. The parents are alerted, and they keep anxious watch for the next "aerial display." The captured insects are not very impressive. The specimens I have examined averaged about 9 mm in axial length and about 7 mm across the base of the elytra. While definitive taxonomic studies must be left to the entomological specialist, it appears that these beetles are close kin of the widely distributed genus *Copris*. There is no doubt that species of this genus, through a process of evolutionary opportunism, have achieved the status of facultative endoparasites of the vertebrate gut.

In advancing this hypothesis we are not unmindful of the fact that genuine insectan parasites of the vertebrate gut are quite rare. The upper segment of the gut, particularly, appears to be an inhospitable habitat for the developing insect. (The Dipteran genus *Gasterophilus* is exceptional in this respect.) Matters appear to be quite different with regard to the colonic part of the gut. We see in the dung-beetles a classic instance of the pre-adaptation of a species to make the evolutionary transition to a novel way of life. The temperature of the putrefactive mass is quite high. Micro-organisms abound, and there is a rapid flow of materials in an enzyme-directed open system. Hence, the occurrence of dung-beetles as aberrant denizens of the vertebrate gut should not occasion great surprise. They are completing their development in surroundings not very different from that of their ancestral group. There remains a nagging doubt about the actual passage of Coprid genera through the human intestinal tract. It is reported that species of *Sarcophaga* and *Fannia* (Diptera) "get access to the intestine via the anus rather than the mouth." It is just possible that a naked toddler grubbing in the polluted soil may attract the attention of adult beetles getting about the business of oviposition. That even a busy toddler will remain complacent during this back-door approach seems doubtful.

In contrast to the vulgarity of cantharitic infestations among our rural folk, intestinal myiasis appears to be quite rare. This is surprising since the calliphorid flies offer many parallels to the scarabids in their developmental ecology. On the other hand, maggots of such genera as *Sarcophagas* and *Fannia* may be passed out with the faeces unrecognised. It is the delayed liberation of the adults from the discharged excrement which makes identification difficult. The zany procedure of the

dung-beetles in "swarming" directly from the stool forces the attention of even those ordinarily indifferent.

Rising faecal contamination

Text-books on tropical medicine speak of "cases of acute diarrhoea reported from Sri Lanka (Ceylon) following massive infestation." Such instances must be very rare indeed. The typical "patient" shows no observable displacement from the "equilibrium position" so far as health is concerned, and specific medication seems quite unnecessary. This designedly cautious phraseology is used in circumstances where a re-definition of "health" and "disease" seems imperative. There is chronic ill-health and physical stunting of children everywhere in Sri Lanka. Simple causative links between aetiological agent and a specific disease-entity are difficult—if not impossible—to find. The mathematically inclined might like to think of a "health matrix"—an array of "state parameters" or numerical estimates of a complex of bodily functions. An environmental "operator matrix," which includes in its array such things as a quantification of the dung-beetle presence, makes health a stochastic affair. We need machine intelligence in symbiosis with human intelligence to unravel the many problems of this type with which we are confronted.

At a less abstract level, it may be stated that in the Third World there is a type of pollution—best described as old-fashioned—which is steadily rising. The reference is to the growing levels of human and animal excrement in the human habitat. Dung-beetle infestations vividly index this pollution. It is no consolation to learn that in the developed West, too, rising *Toxocara* infestations among children index an alarming level of faecal contamination. But this is strictly a phenomenon of the affluent society, since the dog is the miscreant.

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Do patients with Hodgkin's disease, who often have impaired cell-mediated immunity, always make normal granulomas that can be identified histologically if they develop tuberculosis, or do some develop changes of "non-specific inflammation"?

The coexistence of tuberculosis and Hodgkin's disease was so striking when Hodgkin's disease was first described that Sternberg and others considered that it was an aberrant form of tuberculosis.¹ Although many patients with Hodgkin's disease are unable to mount a delayed hypersensitivity reaction to tuberculin,² most patients with Hodgkin's disease who develop tuberculosis form normal caseating granulomas. Only occasional patients who are profoundly immunosuppressed (usually those who have received treatment) fail to produce granulomas and have an atypical form of tuberculosis. Care must be taken in distinguishing the non-caseating granuloma of Hodgkin's disease³ from the granulomas of tuberculosis. If there is any suspicion of tuberculosis tissue for culture and microscopy should be obtained.—C J WILLIAMS, senior lecturer, Southampton.

¹ Hoster HA, Dratman MV, Crover LF, Rolnick HA. Hodgkin's disease—1832-1947. *Cancer Res* 1948;8:1-78.

² Dublin IN. The poverty of the immunological mechanism in patients with Hodgkin's disease. *Ann Intern Med* 1947;27:898-913.

³ Kadin ME, Donaldson SS, Dorfman RF. Isolated granulomas in Hodgkin's disease. *N Engl J Med* 1970;283:859-61.

What are the risks of looking directly at a 40-watt fluorescent light for long periods?

It depends on what is meant by "long periods." There is evidence to suggest that continuous uniform illumination of a given retinal area—that is, for hours on end—can lead to partial disruption of the outer limbs of vertebrate (including primate) photoreceptors. While the latter are subject to continual renewal in the non-senescent state, the question of possible cumulative effects is still undecided.—R A WEALE, professor of visual science, London.