which a high rate of amino-acid transport is observed. The enzyme plays a key role in the γ -glutamyl cycle, which has been proposed as a system for amino-acid transport.²

It is worth noting that many symptoms of M.D. are manifested in organs in which γ -GT is concentrated. The high levels of the enzyme are consistent with its specialized function in reabsorption of amino-acids.³ Aminoaciduria is confirmed in M.D.⁴ γ -GT is also found in high concentrations in the seminal vesicles, epididymis, and prostate, and hypogonadism is a usual manifestation of the disease. In the lens high levels of γ -GT and glutathione have been found.⁵ Since cataract is a common symptom in M.D., its formation may be associated with an amino-acid transport defect and abnormal γ -GT activity. In the bronchi γ -GT is bound to the epithelial membrane⁶ and a defect of the γ -glutamyl cycle may participate in the bronchitis which is usually present in patients with M.D. γ -GT has also been demonstrated in the thyroid gland, which is usually affected in M.D.

The raised γ -GT activity in M.D. combined with some of its clinical manifestations, together with the fact that the enzyme is membrane-bound, while there is support for the membrane localization of the defect in M.D., suggest that the disease may be associated with abnormal γ -GT activity and a defective γ -glutamyl cycle.—We are, etc.,

BASIL ALEVIZOS
DEMETRIS VASSILOPOULOS
MICHEL SPENGOS
COSTAS STEFANIS

Departments of Neurology and Psychiatry,
Athens National University,
Eginition Hospital,
Athens, Greece

¹ Szasz, G., *Clinical Chemistry*, 1969, **15**, 124.

² Orłowski, M., and Meister, A., *Proceedings of the National Academy of Sciences of the U.S.A.*, 1970, **67**, 1248.

³ Meister, A., *Science*, 1973, **180**, 33.

⁴ Emery, A. E. H., and Burt, D., *Clinica Chimica Acta*, 1972, **39**, 361.

⁵ Reddy, V. N., and Unakar, N. J., *Experimental Eye Research*, 1973, **17**, 405.

⁶ Barton, A., Powers, J. L., and Laurence, R. V., *Proceedings of the Society for Experimental Biology and Medicine*, 1974, **149**, 99.

Injudicious First-aid

SIR,—I, too, have been interested in your leading article of 5 April (p. 5) and, like Dr. D. A. Chamberlain and his colleagues (26 April, p. 191), have felt concern about its content.

The report of the pathologist in the case quoted was of course inconclusive and any lessons to be learned have to be considered carefully before adverse criticism is pronounced. Heart-lung resuscitation is given prominence in first-aid training because it has been shown to save life. First-aiders may rarely if ever meet a case of cardiac arrest, but when they have to act in this emergency there is no time to lose. Absolute confidence in what they are doing is essential if the best chance of survival is to be afforded.

Adult training is thorough, as may be seen at the Police Training College at Bramshill, Hants. Here, as elsewhere, training aids are used. The latest in the Resusci-Anne series is the recording model which shows graphically the progress of the first-aid procedures from the clearing of the airway to the response to heart compression. A diagnosis of heart stoppage and circulatory

failure is reached after the preliminary steps have failed to get response. Heart compression is not employed until confirmation of circulatory failure—that is, absence of the carotid pulse among other signs—is obtained. Fracture of ribs should be accepted, particularly in the elderly, as a normal hazard, and successful resuscitation has been recorded after multiple rib fracture necessitating tracheostomy.¹

What attitude is then to be adopted towards the first-aider? Is he or she to be encouraged to complete the work of resuscitation or be expected at a critical time to stand aside and perhaps watch the patient die? There is only one answer.

To return briefly to the pathologist's report on the death of a woman of 64 years—what of heart failure resulting from sudden fright? This is not unknown. In March this year the decision of a jury was accepted that the death of a coronary patient was "a direct result of being put in a state of fear and alarm."²—I am, etc.,

ALEXANDER DRUMMOND

London S.W.4

¹ Leatham, A. G., et al., *British Medical Journal*, 1963, **1**, 636.

² *The Times*, 5 March 1975, p. 4.

SIR,—Some of the dangers of injudicious, overenthusiastic external cardiac massage, which of course occurs inside hospitals as well as without, have recently been exposed in your columns (5 April, p. 5; 26 April, p. 191), but no mention has been made of simple rules to reduce such events.

Before external cardiac massage is commenced it is essential to palpate a large artery, preferably the femoral, to ascertain that the patient is, in fact, pulseless. I can recall several occasions when I have been the first doctor to arrive on the scene and I have not been convinced that the patient had ever actually suffered cardiac arrest. The second point is that the force exerted on the sternum must be maintained for long enough to allow for a satisfactory stroke volume. I would accept that in older patients, in whom bones are more brittle, it may well be impossible to obtain an adequate cardiac output without fracturing a few ribs, and I am by no means guiltless of occasionally fracturing ribs or the sternum myself. However, all too often I have witnessed nurses, some of no mean physique, attacking the patient in a manner which would do credit to a Chinese martial arts film, while at the same time maintaining the force for such a brief period that I doubt if they were achieving an adequate cardiac output.

If these principles were introduced into all teaching of cardiac arrest procedures I am sure that the incidence of fractures of the thoracic cage following actual or suspected cardiac arrest would be appreciably reduced along with their sequelae of pain, reduced thoracic excursion, atelectasis, and chest infection which add to the patient's current problems.—I am, etc.,

PAUL HEWISH

Wembley Hospital,
Wembley, Middx

Adrenal Tumours and Hypertension

SIR,—The article by Dr. J. B. Ferriss and others on "Results of Adrenal Surgery in Patients with Hypertension, Aldosterone

Excess, and Low Plasma Renin Concentration" (18 January, p. 135) is most interesting to us in the light of our previous studies in the field.^{1,3}

We have no quarrel with the statement that removal of aldosterone-producing adenomas in most cases will reduce hypertension to normal levels, and they probably account for 1-3% of cases of hypertension. However, the terms "nodular change" and "nodular hyperplasia," apparently used interchangeably, invite serious comment. Cortical nodules are ubiquitous, bilateral encapsulated masses found in the cortex, capsule, or periadrenal adipose tissue from neonates to old age if properly sought for (serial sectioning of the adrenal at 0.3-cm intervals) and have no relation whatsoever to hypertension. Anderson,⁵ incidentally, in his newer editions agrees to the elimination of the misleading term of nodular hyperplasia.—We are, etc.,

VICTOR TCHERTKOFF
I. SALOMON
RUDOLPH GARRET

Department of Pathology,
Metropolitan Hospital Center,
New York

¹ Salomon, M. I., et al., *Vascular Diseases*, 1967, **4**, 191.

² Tchertkoff, V., Garret, R., and Salomon, M. I., *New York State Journal of Medicine*, 1969, **69**, 2319.

³ Salomon, M. I., and Tchertkoff, V., *Geriatrics*, 1968, **23**, 179.

⁴ Anderson, W. A. D., *Pathology*, 6th edn., p. 1474. St. Louis, Mosby.

Arbuthnot Lane and "The Doctor's Dilemma"

SIR,—In his Personal View (19 April, p. 136) Dr. Henry R. Rollin makes a gross error when he implies that the character of Sir Cutler Walpole in George Bernard Shaw's "The Doctor's Dilemma" was based upon Sir Arbuthnot Lane. This error has been made before and I quote below a letter from George Bernard Shaw to the late Mr. T. B. Layton which categorically states that there is no connexion between Sir Arbuthnot Lane and Sir Cutler Walpole.

"13th March 1948

"I never met A. L. Cutler Walpole was in print years before I ever heard of Lane. You have been misled by the fact that Lane became known by inventing and practising the operation of short-circuiting the bowels by cutting out yards of colon: a surgical monstrosity which obsessed him as the nuciform sac obsesses Walpole. But, unlike Walpole, he came to his senses about it and gave it up. The original of Walpole was a laryngeal specialist who extirpated uvulas.

"Lane attracted my notice by a speech he delivered at a club with a queer name which I forget. It invited him to dine as a celebrity; and he entertained it by a half jocular address to which he attached no importance. I, however, saw that it was quite revolutionary in its bearing on the speed of evolution, and called attention to it. He was naturally pleased and friendly after this; but still we never met. Whether he had ever heard of me before I do not know. I had heard of him through his operating on Lady Simson (Lena Ashwell), then a leading actress.

"As I ridiculed Walpole's obsession and reduced him to absurdity, whereas I praised Lane and gratified him, I think you had better leave Walpole out of the book. Any allusion to him will start a legend that I disparaged him.

"G. Bernard Shaw."

Before impugning the reputation of so great a surgeon as Sir Arbuthnot Lane I