sweating but, probably by reduction of anxiety, his generalised psoriasis was vastly improved. The axillae of a 28-year-old woman were also treated without upsetting her psoriasis.

Patients usually prefer a cure to palliation. One short session of cryotherapy usually gives a lasting (up to three years' follow-up) reduction of sweating to normal levels or less. Cryotherapy is worth considering if the aluminium solution is poorly tolerated or ineffective, or needs too frequent application.

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¹ Ashby, E C, and Williams, J L, *British Medical Journal*, 1976, 2, 1173.

Levodopa in senile dementia

SIR,—We were interested to read the communication from Dr C Lewis and others (4 March, p 550) concerning the use of levodopa in senile dementia and the subsequent letter from the same source (17 June, p 1625). These and other conflicting reports of the usefulness of levodopa in the treatment of senile dementia raise the question whether there are any patients who might benefit from treatment with specific precursors of neurotransmitters. Urinary dopamine excretion may reflect central dopamine metabolism, and this is supported by the work of Crowley *et al*³ on the excretion of free and conjugated dopamine in schizophrenic patients and in Parkinson's disease.

In the course of a study on the treatment of dementia we have measured the urinary catecholamine levels in 20 female inpatients suffering from senile and presenile dementia of the Alzheimer type. In all cases the total free catecholamine levels were found to be within normal limits, but in two cases the dopamine levels were low. These low levels were confirmed in further specimens. The two patients are now being treated with levodopa and the initial responses are encouraging. Both patients are tolerating the drug very well. However, it is too early to draw conclusions that urinary dopamine levels in patients with dementia can be used to predict a favourable response to levodopa treatment. This work is continuing.

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¹ Drachman, D A, and Stahl, S, *Lancet*, 1975, 1, 809.

² Van Woert, M H, *et al*, *Lancet*, 1970, 1, 573.

³ Crowley, T J, *et al*, *Archives of General Psychiatry*, 1978, 35, 97.

Cardiac signs for students

SIR,—Dr James Finlayson and his colleagues in their article on cardiac signs for students (3 June, p 1471) make the following statement: "The diaphragm should be used when auscultating all areas. The bell should be used at the mitral and tricuspid areas for detecting low-frequency sounds and murmurs, but is rarely of value elsewhere." The inference to be drawn from this statement is that the

diaphragm should normally be used in auscultation in preference to the bell and that the bell may be used only if one is trying to detect low-frequency sounds and murmurs.

I do not agree with this view. It has been my practice to teach routine use of the bell for general cardiac auscultation since the bell gives a truer representation of sound than the diaphragm and one is less likely to miss faint, low-pitched diastolic murmurs, third heart sounds, and atrial sounds. If the diaphragm is used routinely these low-pitched murmurs and sounds may be entirely missed. The bell may be converted into a diaphragm chest piece, should one so desire it, simply by increasing the pressure of the bell on the chest wall in such a manner that the skin is stretched across it to form a diaphragm. By this means with the bell one may appreciate the higher-pitched murmurs and heart sounds. One of the virtues of the diaphragm chest piece is that it appears to augment heart sounds and murmurs because of its larger surface area, but it also tends to distort them by cutting out lower-frequency vibrations.

The student should be taught how to become adept at using the bell end of the stethoscope and how, by varying the pressure of the bell on the chest wall, one may augment or attenuate low-frequency heart sounds and murmurs. We have often demonstrated to students how a relatively faint mid-diastolic murmur of mitral stenosis may be entirely missed when using the diaphragm but may be clearly heard with the bell end of the stethoscope. We have also shown how the same murmur may appear to vanish when the bell is applied too firmly to the chest wall, since by so doing the skin is converted into a diaphragm. In my view the above concept of the use of the bell in auscultation is a very important one.

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SIR,—My thanks to Dr J K Finlayson and others for their concise summary of the important cardiac signs for students (3 June, p 1471). It was good to read their debunking of many antique signs and reassuring to hear that even experienced cardiologists have difficulties in interpreting some of the physical findings.

It was disappointing, however, that they should have discarded with the chaff some really nutritious wheat—the cardiac apex beat and diastolic heart sounds. Most British clinicians will see far more cases of coronary and hypertensive heart disease than of any other variety of heart disease and these patients are usually devoid of the physical signs described by Dr Finlayson and his colleagues. In many cases, however, abnormalities of the cardiac apex will be present. To feel and hear the apex of the heart properly it is essential in every case to turn the patient on to his left side.¹ (Who would examine the optic fundi in a brightly lit room if he could turn out the light?) In this position the character of the systolic outward movement of the left ventricle is felt best and diastolic events most easily detected. Little training is needed to appreciate the sharp outward flick of a prominent rapid filling wave (accompanied by the third heart sound) or the distinctive double impulse produced by a large "a" wave (and fourth heart sound) which is usually the

first physical sign of left ventricular dysfunction.² Little practice is needed to hear the third heart sound through the bell of the stethoscope placed very lightly on the apex, but it requires a good ear for low-frequency sounds as well as training and practice to hear the fourth (atrial) sound, which is usually much easier to feel than to hear. A knowledge of the progression of physical signs from the physiological third sound of the normal heart through an atrial gallop, combined third sound and atrial gallop, pathological third sound gallop, and summation gallop with increasingly severe left ventricular disease provides an extremely useful guide to the patient's clinical condition.³

As a general practitioner without immediate access to the diagnostic facilities available in hospital I find the character of the cardiac apex beat and the diastolic heart sounds invaluable in distinguishing the pathological from the physiological heart, in gauging the severity of heart disease, and in following the patient's progress. I believe that students should be taught to examine all patients in the left lateral position and to feel and listen for the diastolic events which can provide such good evidence of left ventricular disease and its extent.

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¹ Bethell, H J N, and Mixon, P G F, *British Heart Journal*, 1973, 35, 902.

² Bethell, H J N, and Mixon, P G F, *British Heart Journal*, 1974, 36, 682.

³ Bethell, H J N, *Update*, 1978, 16, 887.

Rubella embryopathy

SIR,—Dr Constance A C Ross is clearly right to advise that doctors and midwives attending pregnant women should be immune to rubella (8 July, p 127). Surely it is also time for women to be advised that they should ask for their rubella immune status to be determined before embarking on a pregnancy. This could be achieved by the use of posters in general practitioner surgeries, gynaecological clinics, and family planning clinics. Only non-immune women should be vaccinated and it must be explained that pregnancy must be avoided for at least two months.¹ If this policy were followed the ordeal of termination of pregnancy for proved or suspected rubella in early pregnancy would be much less likely and the number of infants damaged by rubella in pregnancy should be reduced. In England and Wales in the four weeks up to 7 July 1978 there were 232 cases of rubella during pregnancy reported to the Communicable Diseases Surveillance Centre.² These figures probably underestimate the problem.

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¹ Strang, F, Beard, R W, and Jeffries, D J, *British Medical Journal*, 1978, 1, 1144.

² Public Health Laboratory Service, unpublished data.

Weight reduction in a blood pressure clinic

SIR,—I welcome the communication of Dr L E Ramsay and others from the Glasgow Blood Pressure Clinic (22 July, p 244) for reminding us that even in the age of potent antihyper-