TABLE I—Mean ($\pm$ S.E.) Concentrations of Potassium and Sodium in Fruit Juices before Passage through Column of Zerolith and Concentrations after Passage

	Potassium (mmol/l)		Sodium (mmol/l)	
	Apple Juice	Grape Juice	Apple Juice	Grape Juice
Before passage	28.2 $\pm$ 1.5	22.7 $\pm$ 3.0	1.0 $\pm$ 0.1	6.0 $\pm$ 0.5
After passage of:				
1 bottle (0.75 l)	0.0	0.0	0.8	0.5
2 bottles (1.5 l)	0.0	0.0	0.0	0.7
3 bottles (2.25 l)	0.8	0.8	0.5	1.0
4 bottles (3.0 l)	1.5	1.2	0.5	1.5
4.7 bottles (3.5 l)	3.0	2.9	0.6	1.5
5 bottles (3.75 l)	4.1	4.0	0.8	1.5

Conversion: SI to Traditional Units—Potassium: 1 mmol/l = 1 mEq/l. Sodium: 1 mmol/l = 1 mEq/l.

TABLE II—Concentrations of Potassium and Sodium in 5 ml of Fruit Juices before and after Hand-mixing with Zerolith

Zerolith in Mix (g)	Potassium (mmol/l)		Sodium (mmol/l)	
	Apple Juice	Grape Juice	Apple Juice	Grape Juice
0	25.1	16.8	1.0	10.0
1	7.2	4.1	0.5	5.0
2	3.5	2.4	0.0	3.0
3	2.7	2.0	0.0	3.0

pH. We have removed potassium from commercially available fruit juices by ion exchange chromatography in a column packed with a calcium exchanging resin.

Dry Zerolith 225 Ca-form resin 150 g was swollen in distilled water for one hour and then, after thorough washing, poured into a 60-cm $\times$ 3-cm column. The column was washed with 300 ml distilled water. Commercially available fruit juices were then passed through the column and the eluate collected. The potassium and sodium contents of the juices were determined by flame spectrophotometry before and after chromatography. The results were compared with those obtained by hand-mixing 1 g 2 g, or 3 g dry Zerolith with 5 ml of the same juices over a period of five minutes. With the Zerolith column the potassium content of up to 3 l (4 bottles) of apple or grape juice could be lowered to acceptable levels (table I). The column allowed a flow rate of 1 l per hour. After 3.5 l of juice had passed through the column the potassium concentration of the eluate reached an unacceptable level of 3.0 μ mol/l and the column had to be discarded or regenerated. Mixing the juices by hand with the resin gave less satisfactory results (table II).

The column procedure is unsuitable for turbid juices like orange or tomato juice, which tend to block the column. The calcium exchange resin does not lower pH or increase the sodium concentration in the juice, and this is preferable to other resins like Dowex 50W,¹ which exchanges potassium for hydrogen, and Resonium A, which exchanges potassium for sodium. The drinks treated by our method were judged highly palatable by the patients. However, we think it would be too risky to allow patients to make their own potassium-free fruit juices, as proposed by Levy *et al.*¹—We are, etc.,

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¹ Levy, N., Boxer, J., and Carter, A., *New England Journal of Medicine*, 1973, 289, 753.

² Cacioppo, Ph.L., and Hollander, L., *New England Journal of Medicine*, 1972, 287, 361.

Blow-out Fracture

SIR,—Your excellent leading article (11 January, p. 50) drew attention to an important and easily overlooked bony injury. However, it is not an infrequent event to detect all the features of this injury, including inferior rectus trapping, the hanging-drop x-ray sign, and operative evidence of an orbital floor defect, without a history of blunt trauma to the orbital contents. In fact, many of these cases in our experience arise from an impact at the inferior orbital margin or to the body of the malar bone.

This discrepancy also stimulated Fujino¹ to test the conventional blow-out hypothesis using a weighted striker on the inferior orbital margin of dried skulls. He succeeded in producing by this method a characteristic "punched-out" fracture of the orbital floor and concluded that a direct buckling force transmitted from the orbital margin across the orbital floor in the absence of increased hydraulic pressure can produce a "blow-out" injury. This agrees with our own clinical experience.—We are, etc.,

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¹ Fujino, T. J., *Plastic and Reconstructive Surgery*, 1974, 54, 81.

SIR,—In these troubled times a leading article on "black eyes" (11 January, p. 50) seems appropriate. Unfortunately your clinical description of the condition is inaccurate and the management is confused.

Confining my remarks to pure blow-out fractures, with an intact orbital rim, then the presence of enophthalmos with retraction of the eye on attempted upward gaze is clinically diagnostic, whatever the x-ray findings may be. A more subtle test is the rise in intraocular pressure on trying to look upwards. These signs mean unequivocally that the orbital floor has been fractured and that herniated orbital contents have become trapped. Orbital emphysema following blunt trauma is diagnostic of a

blow-out fracture and usually implies ethmoidal involvement, in isolation or in association with a floor fracture. Of our 103 cases, 21% had ethmoidal fractures.¹

A patient presenting with a black eye and diplopia should have orthoptic assessment of the ocular movements which includes plotting the field of binocular fixation and the Hess chart. If the diplopia improves during the first few days repeated orthoptic testing will quantify this. Provided that the x-rays show only a small fracture and hernia and the enophthalmos is 2 mm or less, no orbital exploration is necessary since the prognosis for the disappearance of diplopia and the final cosmetic appearance is good.

The indications for surgical intervention¹ have been established as follows: (1) incarceration of orbital contents in the fracture with consequent globe retraction and increased intraocular pressure on attempted upgaze; (2) a fracture with large herniation of tissue into the antrum; (3) enophthalmos of 3 mm or more; and (4) diplopia not resolving significantly within the first 10 days. No decision about operation need be made before 10 days have elapsed. This allows time for bruising and oedema to settle and reveal the true situation concerning enophthalmos and diplopia. Surgical treatment of a pure blow-out fracture is not an emergency but should be confined to those cases fulfilling one or more of the criteria listed. Once the condition of blow-out fracture had been described in 1956² the fashion was for early surgical treatment, preferably within 24 hours. When many patients regained normal ocular movements after early surgery most surgeons were vain enough to believe that the improvement was because of the operation. A moment's reflection on the outcome for most patients with "black eyes" before 1956 will confirm the wisdom of the current approach.

It is clear that the ophthalmologist is the best person to deal with blow-out fractures not associated with generalized injuries, since the correct management of the diploma is paramount.—I am, etc.,

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¹ Dulley, B., and Fells, P., *British Orthoptic Journal*, 1974, 31, 47.

² Smith, B., and Regan, W. F., Jun., *American Journal of Ophthalmology*, 1957, 44, 733.

S.L.E.-like Syndrome Associated with Mitochondrial Antibodies

SIR,—We were interested in the report of Dr. J. Guardia and others (15 February, p. 370) on four cases of a systemic lupus erythematosus-like syndrome associated with mitochondrial antibodies (A.M.A.) instead of the more usual antinuclear (A.N.A.) reactions found in the collagenoses. This syndrome was first identified by German authors, who described 27 cases in 1973.^{1,2} The illness is almost confined to the female sex and is characterized by recurrent attacks of fever, arthralgia, myalgia, pleural effusion with or without pericarditis, a high E.S.R., relative lymphopenia, normal liver function tests, and A.M.A. of high titre, mainly of IgG class. L.E. cells and A.N.A. are usually absent. No evidence of specific infections can be obtained and response to antibiotics is disappointing. Some patients require

steroids, while others go into remission spontaneously after a few weeks. In the cases reported by Dr. Guardia and his colleagues there was only one clinical attack and A.M.A. disappeared, remaining absent on follow-up for 18 months. We have observed several cases of this syndrome and a 20-year follow-up is available in one.

The patient is a housewife born in 1909. She was well until 1954, when she presented at a rheumatology clinic with backache. One year later she developed erythema multiforme, pyrexia, arthralgias, and an E.S.R. of 70 mm in 1 hr. Penicillin caused a severe toxic purpura requiring steroids. Since then she has had repeated attacks occurring about three times a year, lasting one to four months, and consisting of arthralgias affecting mainly the hands, wrists, elbows, and knees with effusions and also the shoulders and back, without rheumatoid changes on x-ray. In 1957 and on several subsequent occasions there were pleural effusions. The most recent episode was in August 1974, lasting six weeks. The E.S.R. during attacks ranged between 30 and 95 mm in 1 h and returned to normal during remissions. L.E. cells have been looked for on numerous occasions in the past 20 years but have been persistently absent except once in 1970 when "very scanty L.E. cells" were reported. The W.R. became positive on one occasion in 1957 but this was considered to be a biological false positive reaction. A.N.A. were either absent or detected in trace amounts. Tests for rheumatoid factors remained equally negative. The leucocyte count was normal throughout, with occasional relative lymphopenia. Liver function tests were normal at all times. A.M.A. were first detected in 1964 and remained at low titres until 1969, when the complement fixation titre went up to more than 1/256. In 1970-2 these antibodies were barely detectable but in her last attack the titre rose again to 1/80. Past and family history showed that the patient, an uncle, and two cousins had Dupuytren's contractures and one son suffers from asthma.

Mitochondrial antibodies are best known for their diagnostic significance in primary biliary cirrhosis (P.B.C.) and allied liver disorders.^{3,4} The antigen has been characterized as a lipoprotein of the mitochondrial inner membranes, molecular weight 180 000 daltons, found at highest concentration in brown fat^{5,7} but also in tissue mitochondria of animal species down to insect flight muscles. Though the immunofluorescent pattern obtained with the pseudo-S.L.E. sera resembles that seen with P.B.C. antibodies, the antigen could be quite distinct in its location within the membranes and its chemical nature and have a different aetiological significance, especially as there are two other mitochondria-related human antibodies—the cardiolipin fluorescent antibody found mainly in active secondary syphilis⁸ and an A.M.A. reacting only with rat tissues, of unknown clinical significance and unassociated with either liver disease or collagen disorders.—We are, etc.,

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- 1 Mass, D., and Schuboth, H., *Deutsche Medizinische Wochenschrift*, 1973, 98, 131.
- 2 Berg, P. A., Traunecker, U., and Märker, A., *German Medicine*, 1973, 3, 58.
- 3 Doniach, D., and Walker, J. G., *Gut*, 1974, 15, 664.
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- 5 Berg, P. A., et al., *Clinical and Experimental Immunology*, 1969, 4, 511.
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- 7 Bianchi, F. B., Penfold, P., and Roitt, I. M., *British Journal of Experimental Pathology*, 1973, 54, 652.
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Reorganization in Yorkshire

SIR,—I refer to the letter from Dr. W. R. M. Couper (8 February, p. 335) in connexion with the reorganization of the National Health Service in North Yorkshire.

In the first place the North Yorkshire Area Health Authority considered the recommendations from the Department of Health and Social Security in H.R.C.(72)5 and H.R.C.(73)13, along with recommendations which had been received from the joint liaison committee set up by the former authorities to give advice to the area health authority on matters in connexion with reorganization. After taking account of all the factors involved the area health authority unanimously decided to establish its headquarters in York and this was subsequently approved by both the Yorkshire Regional Health Authority and the Department of Health. It was also with the agreement and support of the North Yorkshire County Council, whose headquarters were in Northallerton.

So far as appointments to senior posts in North Yorkshire are concerned, these appointments were made by appointment panels properly constituted and set up in accordance with advice from the Department of Health, incorporating such outside assessors as the Department advised, and candidates were appointed strictly according to merit.—I am, etc.,

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Genitourinary Medicine

SIR,—With reference to the letters from Dr. A. S. Wigfield (8 February, p. 332) and Dr. W. Fowler (p. 333) in this department in 1974 the major sexually transmitted diseases syphilis and gonorrhoea accounted for 14% of diagnoses. Other genital infections, some of them not sexually transmitted, included non-specific genital infection, trichomoniasis, candidosis, genital warts, and genital herpes and constituted 51% of diagnoses. In 35% of patients no infective disease was present, though many of these patients had urogenital or other abnormalities which required treatment either in the hospital or from their general practitioners.

The title of the department was changed last year following a decision taken within the hospital, without pressure from the Department of Health and Social Security or the Royal College of Physicians. The new title does appear to reflect the work actually done; furthermore, being free from emotional overtones, it is hoped that it facilitates the use of the department's diagnostic facilities by colleagues within the hospital and in general practice and by patients themselves.—I am, etc.,

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SIR,—I was surprised at the responses from Drs. A. S. Wigfield and W. Fowler (8 February, p. 332) to your leading article (11 January, p. 51).

I am a general practitioner and I know that my view is shared by many of my colleagues when I say that I welcome the change in nomenclature from V.D. clinic (or

even "special clinic") to that of genito-urinary medicine. If such departments are developing with a view to treating clinical problems much wider than those customarily regarded as "venereal" in origin, then it is time we recognized the fact and the change is worth supporting.

Certainly the department which serves my practice provides us with a good service over a considerable range of clinical problems, including particularly those very difficult syndromes of recurrent urinary tract infections and/or recurrent vaginal candidosis. These two problems alone are very well worth the attention of a specialist who is specifically interested and I dare say there will be a considerable number of general physicians and gynaecologists who will be very happy to be relieved of the burden by a colleague whose specific interest it is.

There is no question in my mind that a considerable number of patients (particularly those who are no longer in the first flush of youth) do find it easy to attend a department that is not specifically labelled as "venereal" in its interest. If the experience of general practitioners about the country reflects my opinion then I submit that that reason alone is sufficient to give the changed title our support.—I am, etc.,

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Canine Smokers

SIR,—The recent furore over a mode of research which entails beagle dogs being forced to inhale smoke for long periods in the search to produce a safe cigarette is indicative of the views of the vast majority of ordinary citizens. Notwithstanding that many of the protesters are themselves smokers, they—together with non-smokers—are determined to ensure that scientists should not be allowed to exceed certain fundamental moral obligations to sentient creatures by subjecting them to prolonged suffering in an attempt solely to satisfy craving for whatever satisfaction smoking can offer.

At a time in history when science is leaping ahead in so many fields it becomes necessary to remind those engaged in scientific research that there is a right way and a wrong way to acquire knowledge. In the case of the smoking beagles the ends certainly cannot justify such means, and the methods employed in evaluating such products should be confined to alternative and ethically acceptable techniques.—I am, etc.,

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Adverse Effects of Publicity

SIR,—I am wondering if it is possible for the B.M.A. to prevent two rather adverse types of publicity which have occurred during recent weeks.

Firstly, we have encountered a lot of problems as a result of the B.B.C. television programme on 3 February about induction of labour. I myself did not see this programme but several of my colleagues have asked me to associate myself with their protest over programmes like these. They make it very hard to treat patients in the