They found that biopsy specimens from the patients with sarcoidosis showed lymphoid infiltrates consistent with class I (1+) or less on Tarpley's classification, and that all patients with class II (2+) or higher had SS. As we have not found any other studies on a similar scale that test the discriminatory efficacy of lip biopsy for these two diseases we believe that present evidence favours the hypothesis that our patient had both sarcoidosis and SS. Although Melsom and colleagues did not employ Tarpley's classification, their description is compatible with at least class II (2+). Hence probably both diseases were also present in their case. A statistically significant association between SS and sarcoidosis is yet to be proved; nevertheless, it would not be surprising if we bear in mind that both diseases are characterised by an intense cellular immune response, predominantly composed of T lymphocytes, at sites of disease.^{7,8} Sarcoidosis could therefore become a new member in the list of immunological disorders associated with 'secondary' SS. Several clinically relevant considerations could be inferred from this association. The presence of adenopathies in a patient with a diagnosis of SS, as occurred in Melsom's case as well as ours, suggests the possibility not only of an associated lymphoma but also of coexistent sarcoidosis. On the other hand, lip biopsy in patients with sarcoidosis may not only be useful as confirmatory evidence of sarcoid involvement, but also for eliminating concomitant SS.

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SIR, Sarcoidosis may present with swelling of salivary glands and symptoms of dry eyes and dry mouth very similar to Sjögren's syndrome (SS).¹ Giotaki *et al* showed that labial minor salivary gland biopsy can discriminate between sarcoidosis and SS.¹ They also pointed out, however, that in sarcoidosis a mononuclear cell infiltrate may precede the development of granulomata in pulmonary tissue. They suggest that this situation may also occur in other tissues and that in salivary glands this would mimic the lymphocytic infiltrate seen in SS. We therefore read with interest the reports of two further patients who had the sicca syndrome and changes of SS on lip biopsy but also histologically proved sarcoidosis. Indeed, in the case described by Ferrer *et al* the features of polyarthralgia, erythema nodosum, anterior uveitis, and bilateral hilar lymphadenopathy are highly suggestive of sarcoidosis. Although it is possible that sarcoidosis and SS may have coexisted in these three patients either by chance or because of a common immunological disturbance, we believe the explanation is that the early changes of sarcoid in salivary tissue may mimic those of SS and that all three patients described have underlying sarcoidosis only. In this context it is interesting to note that none of these three patients had serology supporting a diagnosis of SS. Further evidence to support this view would be obtained if serial lip biopsies in patients with proved sarcoidosis demonstrated histological progression from lymphocytic infiltration to granuloma formation.

With reference to the point made by Ferrer *et al*, the lip biopsy of the patient we described had grade 4 changes of SS by the Chisholm and Mason Scale,² which is equivalent to class III by Tarpley's classification.³

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Micromechanical testing of articular cartilage: recent improvements to test apparatus

SIR, We feel that it will be of interest after the article by O'Connor *et al* in this journal¹ to note recent technical advances made in our laboratory in micromechanical testing of articular cartilage. O'Connor *et al* measured the

differential response to compression at various depths from the articular surface to the tide line in normal canine femoral condylar cartilage. To do so they employed 100 μm slices mounted on a transmitted light Nomarski microscope in a stage mounted loading rig. In these essentials the method is unchanged, but it has been subject to improvements in three ways, the subject of the present report.

1. Acquisition of strain data We sought a method of acquiring data quickly and concluded that a computer based system would be effective. We have therefore coupled a video image processor (VIP, Sight Systems, Berkshire) to a BBC microcomputer. For each analysis we record the image of compressing cartilage with a video camera (RCA TC 1004) and VHS tape recorder (Panasonic NV-180). We make measurements during tape playback using a modified software program, 'U. locate' (Sight Systems). This is devised so that the cursor scans a given image area for 'peak black' and hence follows any movement of that image. Chondrocytes are suitable peak black images; they move during cartilage compression and can thus be tracked, one per tape playback. Successively deeper chondrocytes are selected in a broadly similar pattern to that adopted by O'Connor *et al.* During a tracking sequence at set time intervals—for example 1.5 s—the position of the chondrocyte is marked on the screen by a stationary cross. By the end of each tape playback the screen carries a number of these crosses; their positions are automatically stored in the computer memory and their x, y coordinates are displayed and printed out. These measurements of chondrocyte displacement enable the compressibility of the cartilage throughout its depth to be rapidly gauged.

2. Tissue constraint chamber A haemocytometer has clear advantages over chambers employed by O'Connor *et al.* Their chambers were fabricated individually for each test slice of cartilage from slide, cover-slip, shim steel spacers, and glue. The haemocytometer has improved characteristics of forming a reusable chamber 100 μm deep, for which a standard anvil and backplate pair are manufactured.

3. Advance of the anvil A sustained known rate of advance of the anvil was required hence manual operation has been superseded by motor drive using a 15 volt DC motor controlled by a square wave generator. We employ a 'control-a-train' kit (LK64U, Maplin Electronics, UK) and rates of anvil advance of up to 50 $\mu\text{m/s}$.

The improved micromechanical test apparatus is robust, reliable, relatively simple to operate, and not unduly expensive. We believe that the described advances will facilitate understanding of the behaviour of articular cartilage during the loading cycle.

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Book reviews

Rheumatology in Clinical Practice. By J M H Moll. Pp. 764. £69.50. Blackwell: Oxford. 1987. ISBN: 0-632-01342-7.

The author aims, 'to bridge the gap between introductory texts and detailed monographs'. The book has 764 pages and is divided into six sections. Section I highlights milestones in rheumatological history and makes fascinating reading. Section II summarises the scientific basis of rheumatology in conventional fashion with chapters devoted to anatomy, physiology, biochemistry, pathology, immunology, and immunogenetics. Section III covers clinical, radiological, and laboratory assessment and section IV describes the spectrum of rheumatic disorders with separate chapters for rheumatoid arthritis, osteoarthritis, spondyloarthritides, crystal deposition disorders, connective tissue disorders, rheumatic disorders of childhood, back pain, soft tissue rheumatism, and a miscellany of other conditions. Section V discusses management in the broadest sense with a thought provoking chapter on 'Communication', and

Section VI gives a personal overview discussing such questions as: 'What is rheumatology?'; 'What is the size and impact of the rheumatological problem?'; 'How will future research add to rheumatological knowledge?'.

The layout is clear with an index of topics at the start of each chapter and plenty of references. I particularly liked the short summaries that emphasise the 'take home message' at the end of chapters. The book is notable for its widespread use of line and halftone drawings by the author, though good use is also made of clinical photographs.

Rheumatology in Clinical Practice is comprehensive but not fussy, easy to read, and stamped with the personality of the author. It offers an alternative to the standard textbooks at the price of £69.50.

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