principal differences are that Cossiella burnetii is not dependent on an arthropod vector, does not share the Proteus XK antigens, and produces a disease distinct from those caused by one of the creation of a new genus Cossiella within the family Rickettsiaceae is therefore justified in the eyes of the distinguished authors of Bergy.1 I cannot help but agree with them and suggest that the criteria2 of Dr. Smith were adopted taxonomy would frankly be impossible.—I am, etc.,

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Lyosomes and Menstruation

Sir,—Although much information has been gathered on the structure and ultrastructure of the endometrium during the menstrual cycle, little is known about the enzymatic changes which ultimately lead to the onset of menstruation. Cohen1 and his co-workers suggested from histochemical observations that tissue disintegration during the menstrual phase may be caused by the breakdown of lyosomes and the release of autolytic enzymes which they contain,2 but quantitative biochemical studies of the lyosomes of the human endometrium appear to be lacking.

In 1963 Woessner and Brewer3 drew attention to an increase in the activity of the lyosomal enzyme acid cathepsin D in the human uterus during postpartum involution. They postulated that the enzyme was involved in the degradation of uterine collagen, and other studies4 on the endometrium of the rat during early pseudopregnancy also suggest that this is true. Since the breakdown of endometrial tissue during menstruation presumably involves a loss of collagen from the connective tissue matrix, it was decided to investigate the activity of acid cathepsin D in samples of human endometrium taken at hysterectomy or by curettage, and dated according to well-established histological criteria.

The activity of the enzyme was measured using a haemoglobin substrate in tissue homogenates derived from 28 samples of endometrium, 12 from the proliferative and 16 from the secretory phases of the cycle. The mean values for the specific activities (expressed as nmol of tyrosine liberated per gramme fresh weight per hour), together with their standard errors, were 42±7.35 and 88.6±11.3 respectively. Statistical analysis of the data showed that despite considerable variation within the samples the difference in the means is highly significant (P<0.01). In addition, the increase in cathepsin activity appears to be progressive, being lowest in the early proliferative and highest in the late secretory phase.

We believe that this increase in enzyme activity is associated with the dissolution of the connective tissue framework of the endometrium, and that the onset of menstruation is therefore due, at least in part, to the involvement of lyosomal enzymes. It is hoped that investigations currently in progress will establish whether other hydrolytic enzymes are also involved, and whether lysosomes play a similar role in the implantation of the human egg as they do in the rat.—We are, etc.,

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REFERENCES


Scientists in Medicine

Sir,—I write as a graduate scientist who has been working for nearly 16 years in a hospital pathology laboratory. In the light of this experience I would like to comment on the Zuckerman Report1 on your leading article concerning it (7 December, p. 593), and on some of the correspondence from medically qualified pathologists which has followed. The Zuckerman Report and the letters from Professor S. C. Frazer (21 December, p. 768) and Dr. A. L. Woolf (11 January, p. 114) are only too correct when they point out the lack of status, career prospects, and financial reward for most graduate scientists in the N.H.S. compared with that available from other employers. Changes along the lines of the Zuckerman Report will have to be made if the N.H.S. is to attract enough good scientists, for few people would agree with the inference of your leading article that more are not needed.

Steroid "Pseudoendometriosis" in Asthma

Sir,—The introduction of disodium cromoglycate (Intal, FPL 670) into the therapeutic regimen for asthma has allowed reduction, or even withdrawal, of corticosteroid drugs in many patients in whom this had not previously been possible, and so-called steroid "pseudoendometriosis" has been supervised in 9 out of 26 patients. None of the patients had a past history of arthritis. Control of the asthma remained satisfactory. Features of the asthma in the nine affected patients (Table I) were similar to those in the 17 unafflicted patients. Details of pre

Table I.—Features of Asthma

<table>
<thead>
<tr>
<th>Patient</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>M</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>31</td>
<td>26</td>
<td>42</td>
<td>50</td>
<td>60</td>
<td>51</td>
<td>34</td>
<td>49</td>
<td>53</td>
</tr>
<tr>
<td>Age of onset of asthma (years)</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>54</td>
<td>47</td>
<td>32</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>History of sensitivity</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Prick skin test reactions</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Broncho-sensory asthmatic gilliosis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

Table II.—Details of Prednisone Therapy

<table>
<thead>
<tr>
<th>Patient</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (years)</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>5</td>
<td>5</td>
<td>2.5</td>
<td>22.5</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Average daily maintenance dose (mg.)</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>2.5</td>
<td>10</td>
<td>7.5</td>
<td>7.5</td>
<td>10</td>
</tr>
<tr>
<td>Daily dose at onset of symptoms (mg.)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3.5</td>
<td>0</td>
</tr>
<tr>
<td>Period of reduced dosage (months)</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

During my years of N.H.S. employment there have been very great changes in the attitude of the medical profession towards the scientists working among them, changes which have allowed far better relationships between the two disciplines and which, in turn, give the scientists much more scope to develop their potential usefulness to the hospital and the patients. But your leading article and Dr. D. E. B. Powell and Dr. N. G. Sanerkin (11 January, p. 114) seem determined to put the clock back and to keep the scientists in their (subordinate) place. It is time this minority of medically qualified profession realized that scientists are not setting up in competition with them, but that we do demand full recognition of different but equivalent skills.

Though some pathologists will doubtless resent it, it is a fact that clinicians and clinical pathologists now consult me quite frequently not only on the tests required for the diagnosis of the diseases with which I am particularly concerned, but also on the clinical interpretation of the test results and the epidemiology, prognosis, and drug therapy of those diseases. This does not imply that the scientist is usurping the medically qualified pathologist's territory, but merely that the fields of the two types of worker can overlap to an extent which certain pathologists are still not prepared to recognize, but which is inevitable.

Graduate scientists should give their services to the patient and the hospital; they should co-operate with doctors as equals in a different discipline.—I am, etc.

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REFERENCE
