

sates for the increased circulatory requirements.<sup>11,12</sup> The prognosis is better if the blood volume is normal before the onset of bacteraemia than when it is low, with reduced cardiac output and raised peripheral resistance. An adrenergic response, which is not prominent in early septic shock, may occur with progressive circulatory or cardiac failure and increased vascular resistance. Other pathological changes include pulmonary oedema<sup>13</sup> and disseminated intravascular clotting.<sup>14</sup>

Septic shock is best averted by effective treatment of the pre-existing infection. If it develops, early recognition and prompt treatment are essential. Measurements of arterial pressure, central venous pressure, and urine output are helpful. If the central venous pressure falls below 10 to 12 cm. water, appropriate infusions are indicated and should be given as rapidly as they can be tolerated; if the central venous pressure is between 10 and 15 cm. water, fluids should be given with care.<sup>3</sup> Low-molecular-weight dextran or saline has been used. Some authors recommend cautious infusion to replace measured losses<sup>15</sup>; others advise rapid infusion if the central venous pressure is low.<sup>16</sup> Antibiotics should be given in large dosage, the immediate choice being one, such as kanamycin, to which Gram-negative bacilli are rarely resistant.<sup>17,18</sup> The choice can be corrected later, if necessary, in the light of blood culture and sensitivity tests. Treatment with antibiotics has been shown to halve the mortality but may also possibly intensify shock by liberating more endotoxin from killed bacteria.<sup>19</sup>

If the circulation is not improved soon after starting an infusion, other measures are required. A beta-adrenergic receptor-stimulating agent, isoprenaline (isoproterenol), has been found to produce a rapid increase in cardiac output even when there is peripheral vasodilatation; it can be continued for two to three days if needed.<sup>3</sup> In early shock with warm, dry skin, vasopressor agents (for example, noradrenaline) may sometimes be useful, but some workers have found them almost valueless,<sup>20</sup> and they may have bad effects in the later stages of shock when the skin is cold and clammy. Vasodilator drugs, such as phenoxybenzamine, have also been tried,<sup>21</sup> but their value is uncertain. Massive doses of steroids (for example, 1,000 mg. of hydrocortisone) are sometimes recommended.<sup>22</sup> In a retrospective study of patients with septic shock survival was higher in those who had received more than 300 mg. of hydrocortisone or its equivalent in the first 24 hours.<sup>23</sup> M. H. Weil and H. Shubin<sup>23</sup> point out that corticosteroids are used as a treatment for the circulatory defect, not for the infection; indeed, these drugs may interfere with resistance to infection and need the support of effective chemotherapy. For safety, these authors prefer dexamethasone, stopping treatment as soon as shock has been reversed and giving the drug for no longer than five days. To the extent that the transport of oxygen is disturbed it is rational to correct reduced oxygenation of tissues by supplying oxygen (aided, when necessary, by tracheostomy), and there may be some value in reducing the demand for oxygen by the use of hypothermia.<sup>24</sup> Correction may also be required for acidosis, which is likely to occur in the later stages of shock.

The role of septic shock in severe burns and its relationship to the pre-existing illness in such patients is hard to define. It seems likely that a "sick cell syndrome" recently described by S. P. Allison, P. Hinton, and M. J. Chamberlain<sup>25</sup> in severely burned patients contributes to the effects of sepsis and septic shock. The correction of this syndrome which these authors obtained by treating patients with glucose

and insulin might be expected to reduce the hazards of septic shock; this hypothesis deserves further study. The contribution of *Pseudomonas aeruginosa* exotoxin to the development of septic shock in burns is another important factor, for which the most effective prophylactic treatment seems to be the administration of specific antibodies.<sup>26</sup>

## Looking for Papers

The amount of the world's scientific literature doubles about every 15 years. This growth has resulted in increasing difficulty for anyone hoping to keep abreast of advances in his subject. The problem has led to the development of computer-based information retrieval systems, in which the computer's ability to store and sort data is utilized. One such system in the field of medicine is MEDLARS (Medical Literature Analysis and Retrieval System).<sup>1</sup>

This system is organized by the National Library of Medicine in the United States and was established in 1964. Papers from about 2,800 journals in the field of medicine and related sciences, from all parts of the world, are scanned. Each paper is read by one member of a team of indexers, who allots it a number of index terms which describe the essential concepts contained in it. The index terms must be selected from a controlled list of terms, known as MESH (Medical Subject Headings), in which any concept is represented by a unique word or phrase. These index terms, together with information identifying the original paper, are stored in the computer, and once stored can be used in two ways. One is to produce MEDLARS searches made at the request of individuals. The second is to produce the monthly *Index Medicus*, which is essentially a list of all the papers which have entered the system in the preceding month, arranged and subdivided into general topics for ease of reference. The volume of information produced is vast. In 1968, for instance, the *Index Medicus* contained over 200,000 citations. Unfortunately the high cost of *Index Medicus* (about £33 per annum in 1969) has restricted its availability, and this, together with the number of citations which are not of immediate clinical interest, has limited its use by clinicians.

A new publication from the National Library of Medicine is the *Abridged Index Medicus*, which is to be published monthly from January 1970. The *Abridged Index* is designed to present journal references of immediate interest to the practising physician. This has been done by selecting 100 English-language journals, chosen by the library with the help of an expert committee. The journal selection was made on the basis of quality, usefulness to medical practitioners, the need to provide coverage of all fields of clinical medicine, and availability in the United States. A pilot issue dated August 1969 suggests that the *Abridged Index* has overcome the long delay between original publication and appearance of the citation which has been one of the principal shortcomings of *Index Medicus*. References are arranged under alphabetically ordered index headings chosen from MESH; hence some familiarity with MESH would help the reader to use the index. In general, however, those

<sup>1</sup> Harley, A. J., *U.K. Medlars Information Retrieval Service*, 2nd ed. National Lending Library for Science and Technology, Yorkshire, England, 1968.

<sup>2</sup> Lee, W. R., and Williamson, K. S., *British Journal of Industrial Medicine*, 1969, **26**, 251.

unversed in MESH should have no difficulty in finding information.

The hundred journals selected for the *Abridged Index* constitute a reasonably well-balanced collection for the American reader who does not want to stray too far beyond his country's own periodicals. British readers will have some surprises at what has been omitted (though the *B.M.J.* is included); and by its terms of reference the *Abridged Index* omits references to journals not in the English language. No doubt inevitably in a list limited to 100 journals the specialties are not well served. The ophthalmologist or the dermatologist, for instance, may feel that citations from only two specialist journals in each case are insufficient. It could perhaps be argued that public health and environmental and industrial medicine do not form a part of clinical medicine. These wide fields are represented in the *Abridged Index*, but by only two specialist journals. Perhaps more specialized workers will find that specific search programmes are needed to retrieve from MEDLARS references relevant to their subject. An experimental information service, based on a search in the field of occupational medicine, is now appearing in the *British Journal of Industrial Medicine*.<sup>2</sup>

How does the *Abridged Index* fit into the range of existing periodicals available for the clinician? It is in no sense a rival to the existing journals, and indeed its function is different. It is essentially a selected list of references, mainly American, and in order to get information one must obtain and read the original paper. The *Abridged Index* is thus an alerting system, which informs the reader of the existence of recently published material. Clinicians in some fields may find the full *Index Medicus* more useful.

## Crossman Pensions

If the new State pension Bill<sup>1</sup> devised by Mr. R. H. Crossman, Secretary of State for Social Services, comes into operation it will probably mean for doctors higher contributions for the same total pension. This is because the Government, wearing its National Health Service hat, is likely to cut back N.H.S. superannuation in order to compensate for any increases in national insurance retirement pension that the new scheme may entail.

The Crossman scheme would substitute wage-related State benefits for the present mixture of flat-rate and graduated State pensions. Salaried employees (hospital doctors) would pay 6.75% of their salary in national insurance contributions up to a ceiling of 1½ times the national average earnings. At present this ceiling is £1,900, but, since it rises in step with average earnings, it is likely to be well over £2,000 by the time the scheme is scheduled to start in April 1972. If the N.H.S. superannuation scheme were left unchanged salaried doctors would therefore have to pay a total (N.H.S. plus national insurance contributions) of nearly 13% of their pay up to £1,900 and 6% thereafter. For this they would get just over £13 a week from the national insurance scheme (on the basis of existing earning levels) plus the pension for which they were already qualified from the N.H.S. The Crossman scheme is heavily redistributive, and would therefore operate to the disadvantage of anyone earning more than £1,250 a year. The medical profession as a whole would be adversely affected.

General practitioners are self-employed persons for national insurance purposes and under the scheme they would be treated differently from salaried employees. General

practitioners at present pay more in national insurance contributions than salaried doctors—because general practitioners have no employer to share their contribution burden—but both qualify for the same flat-rate State pension of £5 a week for a single person and £8 2s. for a man and wife. Under the Crossman scheme the self-employed would earn a pension on the basis of half national average earnings (regardless of what they actually earn) but they would pay new-style "flat-rate" contributions.

The practical result of this would be that a general practitioner whose actual earnings were £5,000 (after allowing for expenses) would initially pay about £80 a year in contributions and would, when the scheme matured, qualify at the age of 65 for a national insurance pension of just over £7 a week. These new flat-rate benefits and contributions for self-employed people are geared to half national average earnings and would escalate as national earnings increase. In contrast, a salaried hospital doctor earning £5,000 would have to pay 6.75% on £1,900—that is, £128 a year—and for that he would eventually qualify for a national insurance pension of just over £13 a week. From these figures it will be clear that national insurance pensions would provide only a small proportion of the retirement income a doctor would need to maintain anything like his standard of living during his working years.

General practitioners might think they were being unfairly treated because their State pension would be less than a hospital doctor's. In fact, it might be that the general practitioners would gain by paying lower national insurance contributions if these give poor value for money. Full pensions under the new scheme would not be payable until 1992, and anyone retiring in the meantime would get a State pension partly calculated on the existing formula and partly on the new formula.

The next main consideration is what the Government will do to N.H.S. superannuation if the Crossman scheme comes into existence. If N.H.S. pensions are cut back to compensate for the increased State pensions a doctor would gain nothing from the new scheme. As for contributions, it would probably pay to have as much as possible "invested" with the N.H.S. scheme rather than in the national insurance fund—because the national insurance contributions of employees who earn above the national average will be used to subsidize the benefits of lower-paid employees. One way in which hospital doctors could cut their contributions to the national insurance scheme would be by contracting out. Contracting out would not apply to the self-employed general practitioners. The terms for contracting out offered by the Government would cut the annual contributions of a hospital doctor earning £1,900 or over by £25 a year. That saving should increase over the years as national average earnings rise.

However, the choice of contracting out would not lie with the employee but with the employer, so hospital doctors would depend on Mr. Crossman or his successor for the final decision. Even more important, it would be the Department of Health and Social Security that would decide on any consequential cuts in N.H.S. pensions. The official statement so far given<sup>2</sup> on this point is far from reassuring. It merely guarantees the rights of doctors to N.H.S. superannuation benefits earned by service up to the date of the start of the new state scheme in 1972—rights that are guaranteed as a matter of course in the rules of almost every private-sector

<sup>1</sup> *National Superannuation and Social Insurance Bill 1969*. H.M.S.O., London, 14s. net.

<sup>2</sup> *British Medical Journal Supplement*, 1969, 4, 80.