

The incidence of cancer in different races was discussed by Prof. C. Bonne (Batavia), and M. J. A. des Ligneris (South Africa).

The thorny problem of the medical treatment of cancer was discussed in numerous communications. One of these methods which, described as a polyvalent hormonotherapy, had received a good deal of notice in the Continental press, was submitted to a devastating criticism; while the more serious attempts by Prof. E. Freund and Dr. Kaminer of Vienna, which were frankly admitted to be mainly

of a palliative nature, were listened to with respectful scepticism.

The general feeling among the delegates was that definite progress has been made both in our understanding of the disease and in the methods of treatment; and that a continuation of this progress is assured. This feeling found expression in the conclusion submitted at the final meeting, in which it was stated, for the first time officially, that cancer is a disease which is not only curable, but also, within limits, preventable.

National Smoke Abatement Exhibition

DURING October, an exhibition and conference is being held under the auspices of the National Smoke Abatement Society in the Science Museum, South Kensington. The interesting Handbook (Pp. 78. Price 6*d.*) published by the Society, the offices of which are at 36 King Street, Manchester, contains twelve articles on various aspects, which are reinforced by another dozen addresses at the Conference held at the Science Museum on October 14-17. Dr. des Voeux, reviewing the smoke abatement movement, mentioned that an exhibition of appliances was held in 1885. Actually one was held still earlier, in November 1881, under most influential auspices and also in South Kensington (*NATURE*, 25, 219; 1882). The writer has been informed that the organizers were prosecuted for causing a smoke nuisance. Many would be interested to learn that a grate designed by Sir W. Siemens for burning coke and fitted with a gas burner for ignition was a prominent exhibit (*NATURE*, 23, 25; 1881). The promoters of the 1881 exhibition would have been surprised to learn that a problem which they understood would still await solution after half a century.

Technically, of course, a solution is possible, but the obstacle is a lack of will. Generally speaking, enthusiasts for smoke abatement lack power and influence commensurate with their knowledge and vision. They control neither politics nor finance. As a result it is rare, even now, to find in local government any party making atmospheric cleanliness a primary object of policy. Alteration may, however, come soon. It may be realized by property owners that upper floors of buildings in central urban areas might serve as attractive residential quarters if the air were freed from smoke. That realization might create an interest in smoke abatement in people now indifferent though suffering from the depreciation in value of urban property due to a flight to the suburbs. In one of the papers read, Mr. Noel Carrington blamed the decay of civic spirit in large cities for the lukewarm interest in the smoke nuisance. Those who do not live near their work are prone to be indifferent about the conditions there.

The present activity in rebuilding cities offers an unprecedented chance of replacing smoky by clean fuel appliances, but generally speaking the opportunity is neglected. The opportunity is recognized by public health officials—as shown in Dr. A. S. M. Macgregor's paper on the work of his department in Glasgow; but public opinion rarely gives adequate backing.

The development of flying has brought support to the movement from a new quarter. Flight-Lieut. H. M. Schofield's paper described with terse emphasis how aviation is hindered in Great Britain by atmospheric conditions.

There is no doubt that improvement has taken place in the matter of industrial smoke, but the advance is uneven. In many light industries, the spread in the use of gas and electricity has removed the need for boiler plants, and new factories are often smokeless. However, as H. G. Clinch described, there is often great difficulty in enforcing a high standard, and this is increased by the reluctance of employers to encourage and reward technical training among working stokers.

The heavy industries offer another problem, for generally they are protected by law from prosecution for unavoidable smoke. This exemption has generally deprived them of a strong incentive to seek to avoid smoke. As Mr. H. C. Armstrong said in his paper, Sheffield opinion held that their "steels could not be made without smoke". This was due to the recognized need for maintaining a reducing atmosphere in furnaces. That this could only be done by keeping smoking coal fires seemed so axiomatic as to need no investigation. Recent studies have largely destroyed the basis for this opinion, and new practices are developing in Sheffield and Rotherham, assisted by the development of the 'grid' conveying gas from the coke ovens to the steel works. Mr. Armstrong shows clearly that large technical and financial difficulties retard the rapid abolition of coal-fired furnaces, and that much depends on the availability of cheap gas. A definite amelioration can be looked for.

The same point follows from the examination of the problem of smoke in the clay industries by E. Rowden and A. T. Green. It must have puzzled many to understand why the makers of artistic ceramic ware should be content to live in the atmosphere of the Potteries. The firing of clayware is, however, beset with peculiar technical problems which often demand the use of intermittent kilns. When these are fired by coal, smoke production is inevitable, but efforts are being made to diminish this. Headway is being made with the use of town gas-fired kilns when possible, but cost of fuel is a limiting factor.

These industrial examples show the need for making gaseous fuel cheap if industrial smoke is to be reduced. At the moment, the case of the South Metropolitan Gas Co. has brought forward prominently

the question of gas charges, and those interested in smoke abatement will welcome tariffs framed to encourage the displacement of raw coal, not only in the home, but also in industry.

Dr. M. Fishenden reviewed the problem of domestic fuel problems in an illuminating manner, and concluded that although any rapid cure is impossible, present trends to the use of gas, coke, electricity, anthracite should in time be effective.

Three papers dealt with the medical aspects of smoke abatement, two of them with tuberculosis. Today when the improvement of physique is increas-

ingly regarded as of national concern, it is time to expect that the State will act as though the reduction of atmospheric pollution were something of national importance. A paper by Sir Arthur Hill and Dr. C. R. Metcalfe, on the effect of such pollution upon plants at the Royal Botanic Gardens, Kew, illustrated the direct interest of a public department in the subject.

Only a few of the papers have been mentioned, but all merit study, and together form a very comprehensive survey of the problem as it stands to-day.

H. J. HODSMAN.

Pedology (Soil Science) at the British Association

THE assignment of pedology (or soil science as it is still, unfortunately, termed) to Section M (Agriculture) of the British Association is the natural outcome of its historical development from a branch of agricultural chemistry. But although, in its applied aspect, it has the closest and most vital connexion with agriculture, it is to be feared that it is not entirely at home in the agricultural section. Indeed, if the geologists could be persuaded to adopt it, pedology might more fittingly find a home in Section C. It is probably the exception rather than the rule for papers or discussions to be interesting, or even intelligible, to all attending members, even in the senior sections of the British Association. Section M, however, is expected to be more popular in its appeal, and it might be better in future years to introduce pedology in the form of joint meetings with other sections. Problems of applied pedology might still be assigned to Section M.

One session in Section M on September 14 at Blackpool was devoted to pedology. The president, Prof. J. Hendrick, devoted his address to a review of the development of soil studies in the twentieth century. He directed attention to the great change which has taken place in our outlook on soil science since the beginning of the century. At that time there were no British text-books on the subject, little was known of work in other countries, and the soil was regarded simply as a medium for the growth of crops. Since that time, our outlook has been widened both by the recognition of the soil as an object of study in itself and also by the extension of our interest to include not only British soils but also those of other lands. The study of soils is essentially international, and Prof. Hendrick traced the development of that active organization, the International Society of Soil Science, which held its third Congress in England last year. In the remainder of the address, the newer conceptions in pedology were briefly adumbrated. In conclusion, Prof. Hendrick dwelt on the applied aspect of the subject and its impact on society. Increased knowledge means the possibility of increased production and even over-production, problems for the economist and the social reformer. Yet, whilst malnutrition and under-nutrition exist, even in a prosperous country like Great Britain, the fear of over-production is not likely to restrain the soil investigator from pursuing that fundamental knowledge from which progress in practice ensues.

The remainder of the session was devoted to three different aspects of pedology. Prof. G. W. Robinson dealt with the problems and difficulties of soil classification. Pedology as an independent branch of inquiry being still comparatively youthful, the principles of soil classification have not yet been so clearly defined as in the older disciplines. Whilst there is general agreement in regarding the soil profile as the unit of study, it is not always easy to define its lower limit. Further, actual profiles are not always developed to climax. Apart from complications due to immaturity of development, human interference introduces a group of soil-forming factors which must be accorded their place in a scheme of classification. The importance of giving relevant and precise information about soil profiles was stressed. Much of the published descriptive material is almost valueless through irrelevance and lack of precision. Whilst the final elaboration of a world system of classification must await the accumulation of more information, it seems possible to distinguish three main groups, depending on the character of the leaching processes, namely, (1) completely leached soils; (2) incompletely leached soils; and (3) soils with impeded leaching.

The effect of human interference as a pedogenic factor was raised in the discussion, and it was agreed that the study of soil history is of great importance for the comprehension of contemporary soils.

Dr. R. K. Schofield dealt with the behaviour of soil moisture in the field. Given the importance of soil moisture for the growth of plants, and remembering that the interstitial space of soils is the reservoir not only of water but also of air, the importance of studying the moisture conditions of the soil in profile is evident. Ideally, it would be desirable to follow the moisture changes and movements in each horizon throughout the year. By frequent sampling, a certain amount of information may be obtained, and Dr. Schofield gave the results of observations on the classical Broadbalk field at Rothamsted, on a soil in Utah, and on a soil in the Sudan—the last two under the influence of irrigation.

One of the most striking advances in our knowledge of soil moisture has been the virtual abandonment of the 'capillary-tube hypothesis' and the recognition of the limited role of capillary action in determining water movements in soils. This was