

for penicillin, although lysis of the cultures containing penicillin takes place after several hours³. Penicillin is known, so far, to have four effects on *Staph. aureus*: (1) the cells become non-viable³; (2) their respiration progressively fails^{3,4}; (3) lysis occurs after several hours; and (4) assimilation of glutamic acid is prevented. The results shown in Table 2 indicate that the prevention of assimilation precedes both respiratory failure and lysis of the cells, and would appear to take place simultaneously with loss of viability.

The mechanism whereby glutamic acid is assimilated and concentrated within the internal environment of the Gram-positive cell is not yet understood. Since penicillin has no effect upon this mechanism in normal cells but affects cells during growth in such a way that assimilation is prevented, this suggests that penicillin either combines with or produces a reorganisation of the cell-wall such that the assimilatory mechanism is blocked. In these experiments the cells contain a high concentration of glutamic acid at the time of the addition of penicillin, and it has been shown that the further metabolism of this glutamic acid is the same whether penicillin is added or not. In the normal cell this metabolism is balanced by further assimilation; but in 'penicillin-cells' assimilation is prevented, and consequently the internal concentration of glutamic acid decreases as shown in Fig. 2.

Full details of this work will be published later.

¹ Gale, E. F., *J. Gen. Microbiol.*, 1 (in the press, 1947).

² Taylor, E. S., *J. Gen. Microbiol.*, 1 (in the press, 1947).

³ Chain, E., and Duthie, E. S., *Lancet*, 248, 652 (1945).

⁴ Hirsch, J., *C.R. Ann. Arch. Soc. Turque Sci. Phys. Nat.*, Fasc. 12 (1943-44).

⁵ Gale, E. F., and Taylor, E. S., *Nature*, 157, 449 (1946). *J. Gen. Microbiol.*, 1 (in the press, 1947).

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CHICAGO NATURAL HISTORY MUSEUM ANNUAL REPORT

THE report for 1945 of the Chicago Natural History Museum, produced in magazine form and well illustrated, is an attractive publication which at once invites attention. Its perusal gives one, in the first place, the impression that here is an institution which is strongly 'public conscious'. In the second place, one is convinced that the Chicago Museum is happily succeeding in a great public service and that Chicago citizens, as a result, are 'museum conscious'. The large number of volunteer workers (who have rendered valuable service both inside and outside the Museum), the large museum membership, and the long lists of donors and other benefactors shown in the report substantiates that conclusion. Further, if the status of a museum within a community can be judged from the financial support it receives, then that of the Chicago Museum stands high. Ideas as to the manner of the financial support proper to museums may differ, but however debatable that point may be, it is of considerable interest that the very active educational and research work taking place in this Museum is made possible by endowments and voluntary public subscriptions alone. In 1945 the Museum's income amounted to \$601,796.85 dollars (of which \$348,336.53 dollars accrued from endowment funds). In addition, there

was the income of \$16,609.88 dollars from the N.W. Harris Public School Extension endowment. Expenditure out of these sums amounted to \$596,471.89 dollars and \$16,727.49 dollars respectively.

In Britain the large majority of museums (excluding the great national institutions) are usually maintained by local rates, and although in most, if not all, cases they are entirely free to the public, comparatively few have a permanently active or important part in the cultural and educational life of the people. The cause does not require much seeking in view of the general inadequacy of the funds allotted them—a deficiency which, except in rare cases, gives rise to administrative inefficiency and precludes that vigour of policy so apparent in many American museums.

The Chicago Natural History Museum, judging from the report under discussion, shows this vigour in policy in a number of directions. For example, with the cessation of hostilities, plans for the resumption in 1946 of archaeological, botanical, palaeontological and zoological field explorations on a large scale were drawn up, and in this connexion the report states: "The continued expansion of the Museum in exhibits, in study collections and in scientific research is mainly dependent upon such a programme". Again, in co-operation with the University of Chicago and the Northwestern University, a scheme (already in part operation) has been drawn up which will facilitate the greater use of the Museum's collections and the teaching of natural science by the Universities. Towards this, certain reciprocal staff appointments have been made, and there are plans for the further co-ordination of the work of the three institutions in fields of mutual interest. Another interesting connexion with the University of Chicago is the establishment of university classes in museology in the Department of Anthropology of the Museum.

Among the various other schemes carried out by this Museum during 1945 the following are noteworthy: a special series of radio broadcasts within the Museum conducted by means of portable equipment set up in the exhibition halls; lectures, tours and motion picture shows for school children; the presentation of a series of weekly radio broadcasts on "Places and People" in conjunction with the Radio Council of the Chicago Public Schools; and the production of reading matter for children in the form of the "Museum Stories" published weekly, the spring series dealing with brief sketches of young animals, and the autumn series with the Indians of the Chicago region. Under the N. W. Harris Public School Extension Scheme, 498 Chicago schools continued to receive on loan from the Museum portable exhibits, and it is noted that the more than 1,100 available exhibits are in constant use during the ten months of the school year.

Under the heading of "Public Relations", the report describes such special events as temporary exhibitions on a variety of subjects of general interest; the stage presentation of the temple dancers of Bali and Java, and evening lectures on "timely topics". These formed the basis of the Museum's press and radio publicity for the year, and, together with many of its other activities, received "lavish attention" in the Press—some papers publishing half to full pages of pictures. It is interesting to note in this connexion that the *Illustrated London News* has published several pages of some of the Chicago Museum's exhibits. Further useful publicity was

given this Museum when the Chicago radion station broadcast a unique feature programme presenting the work of the Museum 'behind-the-scenes'.

In this review, which has been written primarily to show how highly valuable museum services can be under keen administration and modern methods of presentation, it is not possible to note with adequacy the vast amount of work (research and otherwise) which was carried out by individual Departments of the Museum during the year. This section of the report, however, cannot be passed over without reference to a special exhibit prepared in the Department of Geology. This illustrated the production of uranium, and it was arranged with a map of the world bearing the sub-title, "Sources of Energy for the Atomic Bomb". "The map," to quote the report, "brings out the fact that the United States and Canada are favoured among the nations in their possession of major deposits of Uranium ore, but emphasises that they by no means enjoy a monopoly of it. In fact, the rather general distribution of the ore stresses the ultimatum that Science has presented to the peoples of the world: 'Unite or perish'."

Attention must be directed to the photographic production that takes place in the Chicago Natural History Museum: during 1945 there was an output of 19,792 items. These included negatives, prints, enlargements, lantern slides, transparencies and colour films, and were made for the various Museum departments, outside institutions, the Press, book publishers, and for sale to the public.

Compared with the American museum movement, that of Great Britain has still far to travel. The time for large-scale reorganisation and the introduction of new ideas and new methods is long overdue. The slight movement that was being made in this direction before the War was brought to a standstill when hostilities broke out in 1939, and now 1947 is on the horizon. During these seven years many British museums (those which escaped destruction and those that were partly destroyed) have made a valiant effort to overcome their difficulties and to render useful service. These museums are now slowly struggling back to their pre-war aspect. Collections are returning, or have returned, to buildings which before the War were already overcrowded and often unsuitable for the execution of museum services in keeping with modern needs and modern developments. Some museum authorities, looking to the future, have schemes in plan for reconstruction or new buildings, but it does not appear likely that museum accommodation will be built in Britain in the near future. A further factor which stems progressive action is the non-recognition of the educational potentialities of museums in those official quarters which would otherwise be the most helpful. Furthermore, governing authorities themselves far too frequently see nothing more in the museums under their control than repositories for municipal and collectors' treasures. Any extra expenditure on these, therefore, is considered unnecessary. Nevertheless, the claim of the British museums is a strong one, for collectively they house a great wealth of material which, in relation to the education and cultivation of the ordinary people, has, as yet, scarcely been tapped. The improvements looked for, however, may not come without some form of outside impetus—a vigorous central body to press their claims and with powers to prevent the opening of new museums if funds sufficient for their efficient maintenance are

not in sight; a greater and more practical interest in their functioning on the part of the national institutions, and the recognition of all other educational institutions, are what British museums need at the present time.

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NUTRITIONAL INVESTIGATIONS IN MAURITIUS

IT is encouraging to find that even the smaller territories are now taking an interest in nutrition, but they will have to do better work and produce better reports than that surveying investigations in Mauritius during 1942-45, which has recently been issued.*

At first reading, one supposes it is merely a case of careless checking; for example, in Fig. 1 all nutrients and also calories are said to be given in terms of grams (actually they are expressed in a most odd variety of units, calcium being in centigrams and thiamin and riboflavin in hundredths of a milligram); in Appendix 2 the values for "vitamin B₂" are said to be in I.U. (the figures appear to be for riboflavin expressed in milligrams), and no indication at all is given of the units used for nicotinic acid and ascorbic acid. There are also major differences between values given in the appendix and those in other parts of the report, and the general atmosphere of confusion is added to by strange phrases such as, "This is, of course, expectable" and "not to any consequential degree".

On closer examination, however, it is evident that the faults go much deeper. The introduction and the discussion on pages 28-30 of the report deal with the total food supplies available (based on imports, exports and local production), and an attempt is made to relate them to the requirements of the population. The only satisfactory way of doing this is on a 'per head' basis (the method adopted by the United Nations Food and Agriculture Organisation); but the author has preferred to use the long-discredited 'man-value coefficients' based on calories alone. For the requirements of his standard 'man' he uses the original (since modified) nutrient recommendations of the U.S. National Research Council for a moderately active male living in a temperate climate and eating an American type of dietary, but he supplies a calorie recommendation of his own. He shows no appreciation of the factors which determine requirements or of the interrelationship between different nutrients and between some nutrients and calories.

Table 1 compares "per man-value" daily intakes in different years, and shows considerable fluctuations which are duly 'explained' in the text. But these fluctuations are much greater than can be accounted for by changes in the supply position as detailed in Appendix 1. Only one set of figures relating to the intermediate step (amount of each food per man-value) is given, and this tallies neither with the amounts of foods given in Appendix 1 nor with the amounts of nutrients given in Table 1. Either the figures in the appendixes were not, in fact, used for the calculations (though it is stated that they were), or there have been errors in arithmetic; whichever way it may be, it makes it difficult to know how much

* Colony of Mauritius. Final Report on Nutritional Investigations in Mauritius, 1942-45. Pp. iv + 89. (Port Louis: Gov. Printer; London: Crown Agents for the Colonies, 1946.) 1 Re.