round cover glass or on the glas disc which is generally furnished with the microscope (Fig. 2).

A little experimentation will indicate the proper size of the central disc, which depends upon the aperture of the objective used. The relation of condenser, specimen and objective is the same as with the regular darkfield illuminator: *Limit of Resolution* $= \frac{0.5\,\lambda}{\text{N.A.}}$ *where* λ *is the wave-length of light used and N.A. is the numerical aperture of the objective.*

A satisfactory examination under oil immersion can be made if a funnel stop is inserted in the objective to reduce the aperture of the oil immersion lens.

The use of improvised darkfield illumination has the advantage of allowing a rapid shift from the light to the dark field without disturbing the relation of the objective, specimen or condenser. Results with this apparatus may be relied upon for the demonstration of Treponema.

Directions for Use of Improvised Darkfield Illumination

Insert the stop in the special ring beneath the Abbe condenser. Lower the substage and place a drop of immersion oil, free of bubbles, on the upper surface of the condenser. Put the slide preparation on the stage and center the specimen. Raise the substage until the oil is spread by contact with the slide, filling the space between the slide and condenser. Examine under low and high power. If examination under oil immersion is desired, it may be accomplished by properly inserting a funnel stop in the oil immersion objective and placing a drop of immersion oil on the coverslip before lowering the objective over the specimen. It is important that a strong light source be employed.

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DISCUSSION

AN APPROACH TO THE NUTRITION PROBLEMS OF OTHER NATIONS

During the past several years, the Nutritional Biochemistry Laboratories of the Massachusetts Institute of Technology, in collaboration with the Mexican Institute of Nutrition and the Pan American Sanitary Bureau, have been working in the training of food chemists and nutritional clinicians; in the analysis of Mexican foods[1]; in the appraisal of the nutritional status of Mexican school children; and in the development of a school lunch program in Mexico City. As a result of this experience several observations have been made as to what appear to be the most practical approaches to the solution of the food and nutrition problems of countries other than our own. While it is realized that more extensive experience may modify some of these observations, they are presented at this time for the guidance of those actively concerned with the food problems of other countries, especially those in Latin America. No attempt is made to discuss here the adequacy or inadequacy of food production in the United States to meet the needs of other nations. The current controversy on that subject only serves to emphasize the desirability of examining carefully every practical approach to the problem of feeding mankind.

Nutritive Quality of Foods

Because of the high nutritive quality of indigenous Mexican foods it was not difficult to formulate a school lunch containing one third of the daily allowance[2] of protein, calories, minerals and vitamins. Most Mexican foods are unknown in the United States; similarly many American foods are not widely consumed in Mexico. For instance, milk, meat and eggs, while admittedly excellent foods, can not be used extensively there because of high cost, low production and inadequate transportation.

In our investigations, we have encountered several very nutritious food plants which are eaten by significant segments of the Mexican population. One of these is malva, an uncultivated plant which grows extensively on the Mexican plateau. Its leaves are eaten much as we eat spinach. A serving of malva (100 grams) can supply 40 per cent. of the calcium, 90 per cent. of the iron, 140 per cent. of the vitamin A (as carotene), 60 per cent. of the ascorbic acid and a significant portion of the thiamine and niacin allowances[2] for adult man. Charal, sesame seed, calabaza seed, pulque, piñón and corn tortilla are foods especially rich in various nutrients.

Nutritional Status of People

The effect of the high nutritive value of Mexican foods was reflected in the nutritional status of the people. Malnutrition appeared to be no more common[3] among a group of 1,000 children in a poverty-stricken area of Mexico City than in a group of 800 children from middle-class families in Michigan.[4]

[1] R. Cravito, E. E. Lockhart, R. K. Anderson, F. de P. Miranda and R. S. Harris, *Jour. Nutrition*, 29: 317, 1945.

[2] "Recommended Dietary Allowances," Reprint and Circular Series No. 115, National Research Council, 1943.

[3] E. E. Lockhart, *et al.*, unpublished data.

[4] R. S. Harris, E. Weeks and M. Kinde, *Jour. Am. Diet. Assoc.*, 19: 182, 1943.

A study has been made of the foods eaten by Indians living in the Mesquital valley some 80 miles from Mexico City. This valley is so arid and desolate as to cause one to wonder how there is sufficient vegetation to feed the numerous villages which spot the area. Yet these native tribes have survived through the centuries upon foods gleaned from this forbidding soil and show surprisingly little evidence[5] of malnourishment. The problem in such areas is not one of malnutrition but of undernutrition. Though the quality of the diet is satisfactory, the quantity may be below that necessary for best growth and development.

FOOD HABITS

Food habits seem to be highly developed in areas such as the Mesquital. Each food habit that we have investigated has been found to have a scientific justification. Thus, the lime which is used in the treatment of corn during the preparation of tortillas contributes a very significant quantity of calcium to a people whose diets are otherwise calcium-deficient.

Hot chili is surprisingly rich in carotene and as little as 6 grams of some varieties will furnish the entire daily allowance[2] of vitamin A. It is interesting that chili is deep-seated in the food habits of a population whose diets are low in vitamin A content. Food habits may not always be based on nutritional needs, yet the traditional food habits of a people who have survived successfully in an adverse food environment must necessarily embody choices of great nutritional significance which were probably made blindly or through uncritical trial and error. In such areas the analysis of edible plants can identify now those particular foods which a population might eventually find in its groping for a better diet during centuries to come. Thus, the progress of a people toward an improved utilization of better indigenous foods can actually be hastened.

Because food habits often have a scientific justification, they should not be altered until one is certain that the substituted food will supply the quantities of all nutrients formerly provided. Even then it may not be advisable to encourage changes until data are available as to their effect upon such things as the synthesis of vitamins by intestinal bacteria. The habits of peoples with long-established food cultures should be regarded as inviolable until they have been most carefully analyzed.

There is a danger in forcing dietary changes on other countries. Our sense of preference and superiority and their inordinate respect for our prestige position tempts us to believe that ours is the preferred way of living. Thus, we may be deluded into believing that good nourishment can not be achieved unless milk, meat, eggs and certain designated vegetables are a part of the daily dietary. Though this may be the American pattern of good nutrition, there are many parts of the world where this pattern should not be advocated. The foodstuffs which most effectively and economically assure good nutrition in the United States are not those which can best nourish the people of Mexico or China or elsewhere. Good nutrition consists in supplying all nutrients in the amounts necessary for the best growth, development and maintenance of all body tissues. The particular foodstuffs which serve as sources of these nutrients are themselves of no particular importance. Calcium is nutritious whether it comes from milk or Mexican tortilla.

Nutrition education in any given country should be patterned around the food habits of the people and formulated on the composition of native edible plant and animal products. It should not be based on the food pattern of any other nation. We have noted that a school lunch based on United States food habits costs approximately five times as much in Mexico City as a more nutritious school lunch based on Mexican food habits and foods.

FOOD ANALYSIS

Exact analysis of all edible plants for all important nutrients is basic to the sound food and nutrition program of any country. Agricultural policy should be formulated only after all edible plants native to the area have been analyzed for nutrient content. Preference should then be shown for those crops which give the greatest yields with the most nutrition at the lowest cost. Food analysis can also guide geneticists in the selection of the most nutritious strains and varieties of plants. Our preliminary studies[6] indicate that through corn breeding the niacin content of the Mexican dietary may be raised significantly.

ASSISTANCE FROM THE UNITED STATES

Other nations may best be helped by (a) training key nutritional biochemists, nutritional clinicians, nutritionists, agronomists, economic botanists and specialists in food habits; (b) by supplying equipment necessary for food and nutrition research; (c) by sending field personnel abroad, first to direct and later to advise in practical nutrition research programs; and (d) by giving scientific instead of financial assistance in years to come.

Other nations will fail to solve their nutrition problems if we in the United States are permitted to impose our foods and food habits upon them. These nations will succeed as they learn that their way to good nutriton need not be our way. We in the United

[5] R. K. Anderson, *et al.*, in press.

[6] P. Mangelsdorf and R. S. Harris, in press.

States will be most constructive when we learn that other nations need our knowledge and skills, not our foods and food habits.

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NATIONAL ARCHEOLOGICAL RESOURCES

RESOLUTION CONCERNING THE CONSERVATION OF NATIONAL ARCHEOLOGICAL RESOURCES IN THE RIVER VALLEYS OF THE UNITED STATES

1. WHEREAS: There are now under consideration plans for the establishment of river valley authorities, comparable to the Tennessee Valley Authority, as well as other flood control and reclamation projects, in several if not all of the major drainage systems of the United States.

2. WHEREAS: Eighty per cent. of all archeological remains in the United States are concentrated in approximately 2 per cent. of its area—namely, the banks of its great rivers and tributary streams—due to the fact that early man, like his modern successors, lived, hunted, farmed, built his temples and buried his dead along these fertile river margins.

3. WHEREAS: It is obvious, therefore, that the damming and flooding of considerable stretches of these river systems would irretrievably cover or destroy vast and important archeological deposits in all such areas.

4. WHEREAS: These archeological remains consist of prehistoric settlements, temple or other mounds, burial places and human cultural deposits accumulated during many thousands of otherwise unrecorded years. Only by careful, scientific excavation can such archeological remains provide their widely ramifying and extremely important historical, scientific, economic and artistic contributions concerning the earliest settlements of man in America, the history of the development of basic American agriculture, the incidence and range of human pathology native to America, as well as a wealth of material specimens and facts to be derived from them. Such contributions are not only scientifically and artistically valuable, but also of perpetual interest and educational value to the present-day citizens of the United States.

5. WHEREAS: The potential scientific, educational and cultural value of the archeological record still buried in the river banks of the United States represents an important asset belonging to the entire nation. It is, moreover, an utterly unique American historical record and such parts of it as are destroyed unrecorded can *never* be replaced. Three hundred years of effort may re-create a burned forest but once a part of the human prehistoric record is flooded or carelessly dug up and thus destroyed, prior to scientific study, it is lost forever.

6. WHEREAS: In those areas where it is deemed advisable to create river valley authorities or similar projects involving flooding and concurrent alterations, it is quite possible to attain reasonably adequate conservation and utilization of archeological resources at a cost representing a very small fraction of the total expenditures involved in such operations.

7. *Therefore, be it resolved.*

That there should be incorporated in the organic law creating or perpetuating any and all river valley authorities or similar projects involving the flooding or alteration of areas including Federal lands, river, harbor and all other areas subject to Federal control, as well as areas including sections of more than one state, now, and in the future, explicit provisions for adequate conservation of archeological resources; and, further, that the term "adequate conservation of archeological resources" be defined in correct legal terminology to include all the following items (a–e):

(a) Archeologists selected for such employment must meet the Civil Service Commission's requirements for such positions and have the approval of the Bureau of American Ethnology, Smithsonian Institution.

(b) Prior to such alterations or flooding, such archeologists must be provided adequate facilities and time for the complete archeological mapping and test-pitting or sampling of the area concerned.

(c) Prior to such alterations or flooding, adequate time and facilities must be made available to the archeologists for the complete excavation of selected key sites in the area. If coordinated with the early plans this will not hold up schedules.

(d) Laboratory facilities must be made available for the processing and study, as well as the preservation in perpetuity, of the excavated archeological materials.

(e) Provisions must be made for adequate publication and dissemination of the scientific and historical results thus attained.

The Committee on the Basic Needs of American Archeology of the National Research Council
Signed WM. DUNCAN STRONG,
Chairman of the Committee

The Planning Committee of the Society for American Archaeology
Signed FREDERICK JOHNSON,
Chairman of the Committee

Committee for the Recovery of Archaeological Remains
Signed WILLIAM S. WEBB,
Chairman of the Committee

NON-PERMEABILITY OF THE LACTATING BOVINE MAMMARY GLAND TO PENICILLIN

AMONG other factors, the possibility of success in treating mastitis by the intravenous route obviously depends on the degree of permeability of the lactating