

Chapter One

Education: Cornerstone of Good Nutrition

BECAUSE NUTRITION is the foundation of good health, the food we eat today plays a major part in shaping our destiny tomorrow as an individual, as a family, and as a nation. "Good health" means more than just the physical well-being of a person. One of the few matters of international agreement in our world today is the definition of health which appears in the constitution of the World Health Organization of the United Nations and was agreed upon by the nations who ratified the WHO constitution (1):

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

As nutrition is the foundation of good health, education is the cornerstone of good nutrition, because to attain good nutrition the individual must be *taught* to make good food selection and to maintain an environment conducive to the utilization of the nutrients provided by the food. Getting the proper nutrients every day is not achieved in man by instinct; it is accomplished through the application of knowledge. Thus man must know how to utilize the existing food supply so as to derive maximum nutritional benefit from it. "To establish good food habits, people must be able to learn, and nutrition educators must be able to teach." (2)

Our basic drive for food and the way we satisfy it are as personal as our fingerprints. Hunger is fundamental to life — it is a continuous drive from birth to death. From an infinitesimally small cell, an individual is produced who in about two decades will be twenty to thirty times as large as at birth. This miracle of growth results from a dynamic system in which substances are added to our bodies, used by them, and discarded.

How individuals satisfy hunger and appetite from day to day has a direct effect upon their well-being: our "nutriture" (health as it is affected by nutrition) depends upon the substances with which we were built before we were born, those we consumed in our growing years, and those we must rely upon throughout the adult life span. Patterns by which these nutrients are used in the normal course of events are determined by complicated systems of checks and controls.

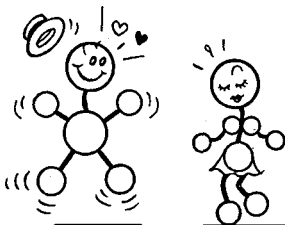
FOOD AND SOCIETY

The immediate relationship of food to the health of the individual expands to become an influence upon the health of the society in which he lives. It has been said that nutrition is a science concerned with the movements of atoms in man to the movements of man in society. Because of the tremendous population explosion, the supply of food for all peoples of the world is indeed becoming more critical every year.

Wars have been fought over food — or lack of it. The concept of "lebensraum" (living space) and the need for land to grow more agricultural products have long been motives for conflicts ranging from neighborhood skirmishes between primitive tribes to world-wide wars among nations. Food and politics are more closely related than ever before in history.

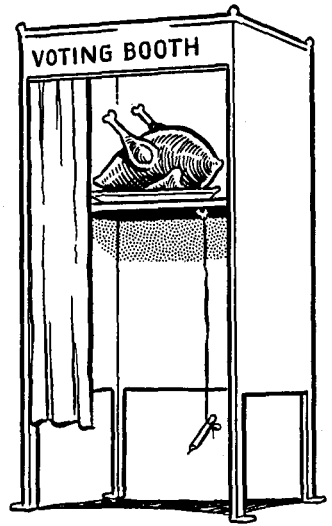
Dr. C. G. King (3) has asserted that "... the growing interdependence of men in different fields of science, in different types of industry, and in different areas of responsibility stands out more clearly than ever before. . . . Voting and eating are close relatives in a very large family." The effective dissemination of nutrition information is vital in a democracy.

It can be further said that the nutrition problems of all the world's people are vital in the struggle between democracies and dictatorships, freedom and tyranny. Food has been a weapon in the hands of despots, but it can also be an instrument of peace in the hands of free peoples. The changing picture of the world's population and food supply might lead us to conclude that one way to a hungry man's



*. . . nutrition is a science
concerned with the movements
of atoms in man*

*. . . one way
to a hungry man's politics
is through his stomach.*



politics is through his stomach. If he is restless, semistarved, and desperate for enough food for survival, he is likely to accept immediate help now and pay the political price later.

Lord John Boyd-Orr, first director-general of the Food and Agricultural Organization of the United Nations, aptly said (4):

Food shortage with resulting land hunger in the overpopulated countries in Asia is a contributory cause of the unrest and revolt against the rule of the white man and the spread of communism, with its promise of land for the people and the production for consumption by the people and not for the profit of landowners and others.

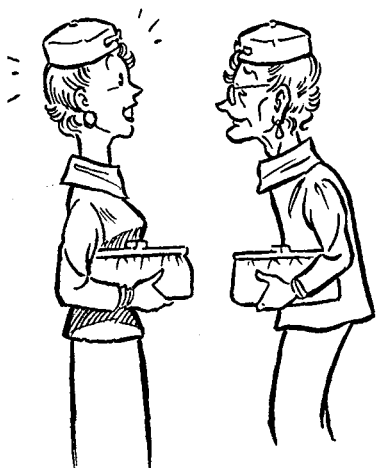
He subsequently added,

The masses of the people have little interest in politics, except in measures which affect their interest. . . . Political freedom has little appeal for the poverty stricken illiterate masses which form nearly half of the world population, unless as a means of using a vote to get rid of the existing government. As an American visiting Asia is reported to have said, "If you offered a hungry Asian Roosevelt's four freedoms or four hamburgers he would choose the hamburgers."

Nutrition education carries much responsibility in acquainting the public with the world food situation and with the meaning of malnutrition, especially semistarvation, which is perhaps the most prevalent form.

OUR NUTRITION PROBLEMS

It is hard to imagine that despite a surplus of food in the United States we still have nutritional problems. We may not have starvation or semistarvation which is found elsewhere in the world, but we do have poor food habits which, in as yet undisclosed ways, are undermining the longevity and productivity of many Americans. An im-



*... dietary patterns
may indeed be related
to the aging process.*

portant lesson yet unlearned is that of changing our way of eating with the changing physiological needs of advancing age, changes in economic status, and shifts in environment. For example, our inability to adjust to these situations has brought upon us the problem of overweight — which is unique to our nation and other nations with a similar economic picture.

Various dietary abuses have created or contributed to other problems: dental caries and chronic disorders of body systems, such as the vascular or skeletal. These problems occur despite the fact that the body is apparently well equipped with reserves and safety devices. Thus is indicated the cumulative effect of dietary abuse. In human nutrition little is known about the delayed effects of early malnutrition, but we have reasons to believe they occur. Animal studies suggest the significance of poor nutrition in early years to degenerative disorders which mark the onset of senescence. Long-time dietary patterns of human beings may indeed affect enzyme systems which undoubtedly are closely related to the aging process (5).

Freedom of Choice

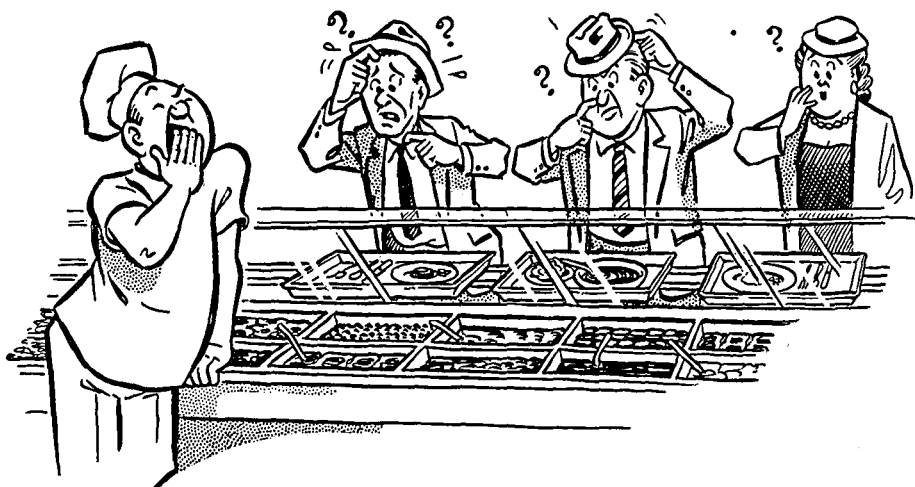
Probably our precious freedom of choice precipitates many dietary problems. Agricultural abundance, technological advances, and prosperity present us with a wide panorama of dietary items. Enjoyment of eating is a part of the social way of life for many Americans; many can afford to choose food for pleasure as well as for sustenance. Markets present us with a bewildering array of foods, and advertisers often influence us to choose by emotion rather than reason. True variety in food has repeatedly been shown to be a protection against a poor diet, but, as pointed out by Dr. Margaret Lantis (6), an anthropologist with the U.S. Public Health Service, the range of choices on our food

counters "is illusory and misleading. We are not nutritionally much better off for having three kinds of lettuce on sale at the same time in the same store"

This "supermarket complex" does lead to an infinite variety of choices, but too often a kind of variety that produces bewilderment, not better nutrition. In such a situation, one is called upon to make only a decision among many similar items rather than a selection of different kinds of food which would supplement each other nutritionally.

Our freedom of choice extends to the many opportunities to take meals away from home — in our schools, industrial plant cafeterias, institutions, and restaurants. These occasions often increase the number of decisions we must make as to what we eat. We can easily choose good diets at moderate cost, if we make intelligent use of our nutritional opportunities. *Quality* of diet in our nation is an easily attainable goal for most of the population.

In sharp contrast, survival of many of the world's peoples depends upon *quantity* of food: Whether a person can obtain enough nourishment every day to subsist. Even when food supplies are adequate for survival, the individual may have small variety from which to choose. Although good choices may be available, lack of nutrition knowledge or the presence of firmly established traditions may interfere with wise choices in food, which may ultimately result in dietary deficiencies. The health, productivity, and life span of the individual are thus determined by how he selects his diet — and what selections exist for him.



These occasions often increase the number of decisions we must make

We need to understand that because we in the United States are blessed with abundance and freedom of choice, we must be concerned about the education needed to direct our selections of foods in such a manner that they will contribute to health and productivity as well as to momentary satisfactions. The health and well-being of our citizens are an important part of our national resources now and in the future.

Education Is Important

How can the nutritional status of individuals, groups, and nations of people be improved? Answers to this question are not simple.

Education is important to many aspects of the problem. If incomes are adequate and foods plentiful, people must be taught how to choose wisely. If the problem is shortage of foods, remedies must be found for the root causes of those shortages before the dietary problems can be attacked. This, too, may be an educational matter.

We must teach other peoples of the world how to grow more and better agricultural products; how to process, distribute, and store them efficiently; and then teach them as we teach ourselves how to consume them advantageously.

As a comparatively young science, nutrition depends upon many specialists to apply their skills to the improvement of food supplies. When this is accomplished, nutrition educators must teach people how to build good diets for themselves. The educator must know *how* to teach the people — and *what* to teach them.

THE EDUCATOR AND THE SCIENTIST

The accumulation and dissemination of nutrition knowledge must go hand in hand, in a sort of team-like relationship as expressed in *Food for Life* (7):

Scientific knowledge did not happen; it was gleaned by continuing and patient effort, by study and experiment. In the realm of food, as in all others, support of such effort has paid rich dividends in human welfare. But knowledge of the scientists and technologists is not sufficient. To put it into action, there must be widespread understanding and support by the people. . . .

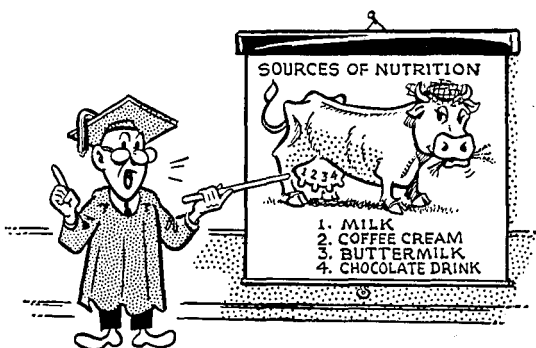
Obviously, nutritional science bears a large responsibility for future generations of men the world over . . . and it has begun to spread its newfound knowledge, as is shown by the improved nutrition of most Americans. At the moment, its immediate problem is to disseminate that knowledge so that every man, woman, and child not only has a sound understanding of what good nutrition is but also acts on it.

The greatest need of American nutrition today — and that means American health, too — is public education.

Nutrition education has made progress in the past. To a certain extent, we now know the roles of nutrients, the practical value of fortifying or enriching staple foods, the usefulness of food plans and guides, and how to help the individual become aware of his own nutritional status. But these things were not known 50 or 100 years ago.

The nutrition educator's task is twofold: first, to teach what is known and, second, to continuously study and critically evaluate new information. Modifying information presented in the light of new discoveries is a vital requirement for teaching.

*... to critically
evaluate
new information.*



The nutrition educator and the nutrition scientist share a common goal: to improve the nutritional status of people. At one time the same person combined the two responsibilities but now two separate specialists more often are needed. The scientist analyzes food and people; the educator relies upon the scientist's findings in order to teach people how to improve food habits; so the two are interdependent.

The scientist in nutrition research must analyze foods and investigate the metabolism of nutrients in relation to the functioning of body components. He must work in precise, disciplined techniques. Variables must be controlled insofar as possible. His results are then neatly tabulated, classified, and interpreted. They must be preserved for reanalysis and interpretation in the light of future discoveries. It is legendary that "a good set of data are eternal."

The findings, as reported by researchers, however, may appear to be far too formidable for the layman to understand, or to apply to his own food problems. Because the scientist is so busy with his specialized tasks, he may have little time or inclination to leave the laboratory in order to explain to laymen what he has learned and how it may help him. A good scientist often can present his findings

and those of other researchers in a brilliant and convincing manner, but the day-to-day teaching, aimed at motivating people to change, requires special skills and techniques which the scientist may not have time to acquire.

The nutrition educator, however, has the necessary teaching skills and abilities, plus an understanding of nutrition research. The understanding should be broadly comparable with that of the nutrition scientist. The educator must use precise, scientific nutrition data to encourage flexibility and variability in the use of foods to meet physiological and psychological needs. The educator is a *translator* who carries the heavy responsibility of interpreting scientific evidence into meaningful facts which laymen can understand and apply to food selection in a wide variety of situations and to meal planning and preparation. Thus the nutrition educator has become the connecting link between the scientist and the layman; between the laboratory and the dinner table—whether that dinner table is in a home, a school or other institution, a restaurant, or a company cafeteria.

EDUCATORS MUST MOTIVATE

In motivating people to choose more nearly adequate diets for themselves, educators must arouse latent interest and enthusiasm, convincing people that nutrition does make a difference in the achievement of goals.

We cannot pass laws or issue edicts requiring every citizen to adhere to certain minimum standards of food consumption. Even if there were ways to interfere deliberately with the individual's food habits, we probably would meet stiff resistance and resentment, because the individual treasures his freedom of choice and his diet as a matter of personal privilege. People may guard more zealously their rights to choose what they put into their mouths than what they feed their minds—thus we observe the determined stands sometimes encountered in such projects as fluoridation of water supplies.

So we must convince the individual that his diet is a matter of personal responsibility, and that it also has social impact. For example a malnourished child can be a health hazard to his classmates. An industrial worker may have heavy responsibility for the safety of his co-workers: if he is poorly fed, his impaired physical and mental performance may endanger the lives of others. When a housewife has unsound eating habits the family may suffer from her apathy, fatigue, decreased efficiency, and hyperirritability, and from her example of poor food habits. Since we live in a highly interrelated society, our food habits do affect other people.

Hence the nutrition educator must persuade each person to evaluate his food habits in terms of optimum health and vitality, as a responsibility to himself and to others. But the nutrition educator must be cautious about the use of half-truths, oversimplification, and promises that cannot be fulfilled. Once the individual is convinced he needs to improve his diet, we may then teach him how to do it.

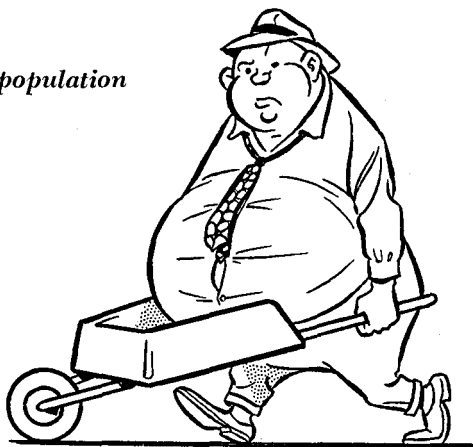
Unfortunately, we cannot offer everyone a thorough, complete course in nutrition, for once and for all time. New knowledge often replaces old; we must reach the public periodically with revised information as it becomes available. Then, too, every person needs to be reminded frequently of good food practices — just as he needs to be reminded of such things as traffic safety and routine dental or health care. We need better lines of communication — and they must remain open — if the individual is to be encouraged to open his mind to new knowledge and new habits.

The Educator's Ideal

If there were no impediments to the teaching of nutrition, we would begin by reaching all children with basic food facts at an appropriate age. We would encourage them to examine their food habits, to evaluate their daily diets, and to acquire some degree of understanding of the importance to their health of food selection and habits of eating.

Then we would continue to reach them often in their school years with broader and deeper concepts as new information is learned and organized. Most of all, we would remind them repeatedly to alter their food habits with their changing food energy needs. This is probably the most important lesson of all. If we succeeded in this, perhaps many of our middle-aged population might not have to cope with the problems of overweight.

*. . . our middle-aged population
might not have to cope
with overweight.*



Finally, we would have some direct, effective way to reach adults with continued learning based on new facts. In their later years, people would be helped to obtain nutritious diets despite such handicaps as poor teeth, inability to perform daily tasks of living, financial limitations, and the loneliness and boredom of old age which so often affect appetite and nutriture.

If we could follow a given individual from his childhood through his adult years with sound nutrition education, he would constantly be well equipped with a solid nutrition background, receptive to new facts and ready to utilize them.

Ideals Versus Actualities

We know, of course, the ideal situation seldom exists. That is true in nutrition education as it is in all other things.

When school curricula are crowded, nutrition education is sometimes covered perfunctorily and not so often or so thoroughly as we would like. Furthermore, outside influences often run counter to what is taught in school. Consequently, there are many young people and adults who have had little or no education in choosing good diets. This makes the educator's task more difficult: we must overcome fully established eating habits which have been re-enforced by traditional beliefs, cultural patterns, and even superstitions. We must first create a mental climate favorable to learning the basic facts of good nutrition; then we may begin to re-educate the individual with information based on sound knowledge.

EDUCATORS AS SPECIALISTS

Because food habits are so personal, nutrition educators must be concerned with the values, goals, attitudes, and beliefs of their students. They must tailor subject matter to fit the needs and abilities of students. Part of a teaching background lies in knowing what the sociologist, anthropologist, psychologist, and economist have revealed about people and their food habits—and then in being able to apply the information thus obtained to the task at hand.

The nutrition educator may be a specialist with nutrition education as a primary responsibility, or may be a generalist who integrates nutrition education into a diversified program. The level of information may cover a wide range from highly complex concepts to the very simple. Whatever the level, all are nutrition educators and all need a firm grasp of the knowledge of nutrition at the level they are teaching plus the techniques of reaching different groups of students effectively, evaluating their progress, and motivating them toward a lifelong interest in their diets.

The nutrition educator — whether man or woman — finds opportunities through many different avenues of teaching. As a woman:

- She may be a *home economist* in the teaching field, Extension Service, industry, or communications work — an informed, responsible citizen of her community. Her home economics predecessors pioneered in developing the science of nutrition, and their modern-era counterparts must continue to carry a large share of the teaching load, particularly in reaching homemakers through the media of magazines, newspapers, radio, television, and special publications.
- She may be a *public health worker*, who meets situations in which poor nutrition is one major facet of many circumstances affecting the health and welfare of individuals and groups.
- She may be a *dietitian* with the responsibility of planning meals for people who require intensive diet therapy as part of their treatment, and who may need individualized education to learn how to maintain special diet requirements after they have left the hospital or other institution. Dietitians may also provide instruction in nutrition to meet special conditions such as pregnancy, underweight, or overweight. One of the primary stated objectives of the dietetic profession is to promote nutrition education.
- She may be a *teacher* in a public or private school, college or university, or in an adult education class. Her job may require teaching nutrition as an independent subject, or as a special study unit in home economics, health and hygiene, science, or other courses.
- She may be a well-informed homemaker, sensitive to the needs of family and community, a willing cooperator in programs for the betterment of local environment.

The nutrition educator is aware that there is no one established method — or opportunity — to teach nutrition for everyone. Indeed, much nutrition education reaches the individual through one of many allied professional groups who work with the public, such as physicians or dentists. Nutrition is a subject that is taught at a variety of levels of complexity. At any level, the educator must have knowledge in greater depth than she is currently teaching. The lowest level may present the greatest challenge. Some nutrition education must of necessity be in the hands of essentially lay people. Nutrition education specialists have a heavy responsibility in providing materials and guidance to such people.

Because food habits are so personalized and individuals are so free to make their own choices, the educator must devise many approaches to suit an infinite variety of people and teaching opportunities.

A PRACTICAL APPROACH TO EDUCATION

Presented in this book are information and practical teaching methods which may be adjusted to fit the needs of schools and of special groups, including young people's clubs and organizations as well as adult groups. Material included here can be helpful for either a beginner's class in nutrition or an advanced course, and at varying age levels.

In Chapter 2, "The Framework of Nutrition Education," the scope of nutrition is examined as well as the danger signals of poor nutrition.

"What We Eat," Chapter 3, is based on extensive surveys which tell us much about our eating patterns on a national basis. In Chapter 4, "Factors Influencing Eating Behavior," emphasis is placed on the psychological, physiological, and cultural influences upon eating patterns of individuals and groups.

Chapter 5, "What Should You Teach," Chapter 6, "Generalizations and Facts," and Chapter 7, "Methods of Teaching" comprise a selection of helpful content and teaching techniques upon which the educator can base nutrition lessons.

Offered in Chapter 8, "Evaluation," are suggestions that will aid both students and teachers in discussing and assessing progress in nutrition education.

The historical background which underlies the philosophies we share in the field of nutrition is traced perspectively in Chapter 9, "Concern for Nutrition Education." This leads into Chapter 10, "International Nutrition — A Resource and a Responsibility," where world food problems as they relate to teaching nutrition in our present era and in the future are presented.

Finally, "The Challenge of Change," Chapter 11, is a discussion of the significance to nutrition education of change in the individual, within himself, and in his environment. Changing nutritional needs of people through their life stages are considered, and the possibilities of future developments in the science of nutrition as they might concern education are indicated.

THE IMMEDIATE TASK

The immediate task for nutrition educators is clearly defined: to take advantage of the wealth of information we now have in order

to teach people to improve their eating practices. We cannot wait for a final solution of many controversial questions in nutrition or for "sure-fire" methods of changing food habits; we must make use of the large body of nutrition knowledge we possess.

Daniel B. Stone (8) reminds us that one of the most important problems of nutrition is the gap between existing information and applying that information to the daily diet. *We have acquired the facts, but they are not being fully used.* He compares research and teaching in nutrition to the wheels of a bicycle.

Both are essential. Both should be going the same way at the same speed. At present, research is the big wheel. I suggest not that we put the brake on this, but that we increase the size and speed of the teaching wheel. Our main business is not only to see what lies dimly at a distance, but also to do what lies clearly at hand.

We have enough knowledge to teach, and we can do the job which lies clearly at hand.

Sir Richard Gregory (9) said of knowledge:

Knowledge is like energy. It is capable of doing work but it must be changed from the potential state to the kinetic or moving state. Knowledge is like a rock set up on a shelf. It does no harm and it does no good so long as it rests there, but let somebody jar the shelf and let the rock fall off, and then something happens.

We may conclude that the main function of nutrition education is to "knock the knowledge off the shelf."

REFERENCES

1. Parran, T., and Boudreau, F., "The World Health Organization: Cornerstone of Peace." *Amer. Jour. Publ. Health*, 36:1267, 1315, Nov. 1946.
2. Babcock, C. G., "Attitudes and the Use of Foods." *Jour. Amer. Diet. Assn.*, 38: 546-51, 1961.
3. King, C. G., *Science and Food: Today and Tomorrow*. Proceedings of a Symposium, Dec. 8, 1960, Food Protection Committee, Food and Nutrition, Natl. Acad. Sci., NRC Publ. 877, p. 27.
4. Boyd-Orr, John, *Borden's Review of Nutr. Res.*, 15(No. 2):19, 20, March-April 1954.
5. Ross, M. H., "Protein, Calories and Life Expectancy." American Institute of Nutrition, Symposium on Protein Requirement and Its Assessment in Man, July 1959, *Federation Proceedings*, 18(No. 2): 66-83.
6. Lantis, M., "Cultural Factors Influencing Children's Food Habits." Nutrition Education Conference, Washington, Jan. 29-31, 1962. *Proceedings*, p. 27.
7. Gerard, R. W. (editor), *Food For Life*, p. 302. Univ. of Chicago Press, 1952.
8. Stone, Daniel B., *Nutr. Rev.* 19:1-2, 1961.
9. Gregory, Richard, quoted by John R. Murlin, Natl. Nutr. Conf. for Defense, 1941, p. 27.

