

far below its possible maximum. The fundamental problem of the fox farmer, as of every breeder of animals, is one of nutrition; and it is the failure fully to solve this problem that occasions at present the most serious losses to the industry.

If a fox, or any other animal, is to be maintained through life in perfect nutritive condition, its diet must conform to each and all of the following requirements. (1) It must furnish **protein** (flesh-building food) in such quantity and also of such quality as will make good the wear and tear of the body tissue, and provide, in young animals, material for growth. (2) It must have an adequate fuel value or energy content (commonly measured in heat units or **calories**), a requirement best met by supplementing the necessary protein with carbohydrates (starchy foods) and fats. (3) It must contain proper amounts of certain indispensable **mineral** elements, such as phosphorus, calcium (lime), iron, and the like. (4) It must include a sufficient supply of the so-called **vitamines**, essential accessories of unknown nature, the absence of which leads to various types of disordered nutrition, and of which there are believed to exist at least three, (the "fat-soluble", the "water-soluble", and the "antiscorbutic").

To what degree these requirements are met, or fallen short of, in one fox ranch or another, it is not at present possible to decide. It is of course easy enough to obtain a list of the articles that make up the foxes' menu; but to ascertain, item by item, the actual food consumption of the individual animal, (which is what really counts), is quite another matter. Such information, as it has hitherto been possible to collect, touches merely the qualitative aspect of the problem. Any attempt, therefore, here made to correlate the nutritional disorders reported with specific defects of diet is to be regarded as purely preliminary in character.

The most striking feature of feeding practice, as it has come under my observation, is its lack of uniformity. Each ranch seems to have worked out more or less independently an individual plan, and, so long as this operates with even moderate success, it fears to risk a change. Failure and success alike have been largely the result of chance. The diets in use have in short been developed largely at haphazard, and, generally speaking, with few guiding principles other than the supposed habits of the wild fox. It is assumed, rightly or wrongly, that the latter lives almost