article. Is he interested to know that α and β carotene, kryptoxanthine, lepronene, echinenone, and myxoxanthine, etc., serve as provitamins for vitamin A? Does he find it easy to learn the eye changes of A deficiency when he reads that xerotic changes, Bitot's spots, xerophthalmia, and keratomalacia occur, or would he prefer to have a description of the appearance of the eye in less technical terms such as dry or scaly? Similarly with nicotinamide. Does it convey anything to the average reader to learn that it is a component of codehydrogenase I or "Euler's cozymase" diphosphopyridine nucleotide, and also of codehydrogenase II or Warburg's enzyme triphosphopyridine nucleotide? If the space taken by those words had described what the mental changes of pellagra are (we are told there are mental changes, but whether mania, depression, dementia, or hallucinations is not stated), would that have been more helpful?

No doubt the article is full of accurate and scholarly information to the advanced biochemist and nutritional research worker, but such persons have their special books on the subject and do not need to read it in the *B.M.J.* Surely your job as editor is to see that information and fact rather than incomprehensible words are dispensed to your readers. There is no mention of the fact that the teeth become loose and fall out in scurvy (though we are told the reversibly oxidized derivative dehydroascorbic acid is active in treating it), and nothing is said of the occurrence of the signs of riboflavin deficiency in the common iron-deficiency anaemia of women, though the occurrence of riboflavin as iso-alloxazine-adenine-dinucleotide is mentioned. One could go on indefinitely. Under vitamin D we do not learn whether it helps children to grow better teeth or not, but are enlightened about vitamin D₃ being irradiated 7-dehydrocholesterol (cholestadien-3-ol).

I am not criticizing the article itself, only your policy in printing it. If I am wrong in believing that less than 2% of your readers understand most of the technical terms, I apologize for unfair criticism, but if I am right, I suggest that you owe it to your subscribers to give them useful, understandable, and practical knowledge instead of allotof-words-2-obscure-4-any 1 2 succidin-understanding them.—I am, etc.,

London, N.W.10.

RICHARD ASHER.

** The question asked was as follows: Q.—Please give a list of vitamins with all their different names and with notes on the signs and symptoms of deficiency [our italics]. It was assumed that medical men know the meaning of medical technical words such as xerophthalmia.—ED., *B.M.J.*

SIR,—Those who have to keep pace with the literature on vitamins will best appreciate Dr. Leslie J. Harris's difficulty in attempting to compress even into three pages of the *Journal* the answer to the question about vitamins which a correspondent expected to appear as a brief reply in "Any Questions?" There are nevertheless one or two points in Dr. Harris's article which should, I feel, be slightly amplified. For example, Dr. Harris includes para-aminobenzoic acid ("paba") in his least significant group—viz., those vitamins needed by animals but whose significance for humans is uncertain. It has, however, been shown in several series of clinical trials²⁻⁴ that paba in pharmacological dosage has a pronounced effect in the treatment of the rickettsial infections in man. The vitamin is listed in Appendix B in an M.R.C. report⁵ among substances showing no activity in a 20-mg. dose given to a 15-g. mouse, but no human test on it is recorded in the report.

A further point which often arises occurs in connexion with the value of vitamin E in human abortion. As long ago as 1940 Bacharach demonstrated mathematically⁶ that the probability of the results obtained with it in the treatment of a series of 42 patients, who had had four or more abortions, having been obtained by chance was one in 10¹⁰, a degree of probability excelled or equalled by very few clinical trials indeed. In connexion with the value of certain members of the B₂ complex for the human, there appears to be a slight inconsistency between the editorial advice⁷ to take "supplements . . . of yeast or wheat-germ preparations . . . rather than preparations of isolated vitamins" (on the grounds that it is implied by M. Richards's work⁸ that "ingestion of large amounts of one member of the B group . . . may induce signs of deficiency of . . . other members") and Dr. Harris's relegation of pyridoxin to this third (i.e., least significant) group, since Richards's work was concerned particularly with pyridoxin deficiency. Subject to a further

point to which I refer below, one cannot but agree with the editorial recommendation, but it is a fact that Richards's work was concerned with induced pyridoxin lack. If we accept the transference to man of the implications of Richards's work as in your leading article, we can no longer logically regard pyridoxin as of doubtful physiological significance in nutrition.

My reservation in connexion with your editorial advice relates to the recommendation of "yeast . . . preparations," and is twofold. First, the comparatively large amount of yeast which a patient must consume is not generally appreciated. While there are, of course, some highly potent strains, at least an ounce of a normal yeast must be eaten to provide even a prophylactic dose of vitamin B₁. Having regard to the flavour of yeast, this is rarely practicable—least of all, as a rule, for those whose need is greatest. Secondly, it is essential that every precaution should be taken by the maker or the user to destroy all viable cells in the yeast. It has been shown repeatedly⁹⁻¹⁴ that yeasts cannot all be relied upon as sources of vitamin B₁ and that yeasts may be used in the human as negative sources of the vitamin. Indeed certain yeasts are actually recommended by Kingsley and Parsons¹² as offering a convenient and rapid means of depleting human subjects of B₁ without the need of using unpalatable "deficient" diets. This fact has been widely overlooked, and both in this country and in the U.S.A. the "liveness" of certain yeasts has actually been adduced as a recommendation for their use.

In conclusion I should like to refer to two questions of dosage or standard requirements. It is now becoming clear (and Dr. Harris, in citing the L. of N. standard for vitamin A—3,000 i.u. as carotene, equivalent to 1,000 to 1,500 i.u. as preformed "animal" A—gives tacit approval to this viewpoint) that the human requirement is nowhere near the figure of 4,000 i.u. included in such prophylactic preparations as vitamin A and D capsules, *N.W.F.*, still less the 4,500 i.u. included in "pluravit," *N.W.F.*

It does appear, therefore, that in the present state of world shortage of vitamin A more general acceptance of the lower figures—fairly conclusively established since the L. of N. standards were evolved, by the Accessory Food Factors Committee of the M.R.C.¹⁵—could result both in substantial financial economies in this country without the slightest risk of prejudice to health and, what is much more important, in the freeing of material for those in need who cannot at present be supplied.

My other point is in the reverse direction. Dr. Harris suggests (and few nutritionists would disagree) a daily prophylactic requirement of 1–2 mg. riboflavin. Why, then, does the formula for pluravit, *N.W.F.*, provide only 0.05 mg.?—a quantity which is so inadequate in relation to needs that a food manufacturer claiming riboflavin activity on the label of a foodstuff providing in normal daily usage even as much as four times the pluravit-content figure would still contravene the Ministry of Food's directive relating to the administration of the Labelling of Foods Order, and would also render himself liable to prosecution under the relevant Defence Regulation for misleading the purchaser.

These various points relating to requirements of vitamin A, therapeutic usefulness of para-aminobenzoic acid and vitamin E, precautions in the choice of yeast preparations, and the token riboflavin content of pluravit are all worthy of note by those prescribing vitamin preparations.—I am, etc.,

The Research Laboratories, Vitamins Ltd.,
London, W.6.

M. D. WRIGHT.

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- ⁵ *Med. Res. Cncl. Sp. Rep.* 255, 1946.
- ⁶ *British Medical Journal*, 1940, **1**, 890.
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Vitamin-C Content of Fruit-squash Concentrates

SIR,—Your question and answer on this subject in "Any Questions?" (Aug. 23, p. 318) has come to our notice. In our view both the question and the answer are couched in terms which may give rise to some misconception regarding the true position. It is an accepted fact that fruit squashes made from citrus fruits retain no appreciable quantities of ascorbic acid,

even though they do contain 25% of fruit juices, and contain (generally) sulphur dioxide, which acts as a preservative of vitamin C.

Fruit squashes are almost entirely produced from juices imported into this country in concentrated or unconcentrated forms, and the retention of ascorbic acid is extremely variable. It is a fact that as yet no claims are being made for vitamin-C contents in any squashes, and the relationship suggested in your answer—i.e., that the fruit-squash concentrate should contain one-quarter of the ascorbic acid in the fresh juice—cannot be upheld.

The use of the term "concentrates" in connexion with these squashes is open to objection. Under the existing S.D.I. regulations fruit squashes are placed in the category of "concentrated beverages," but this term possesses no significance to the general public. On the other hand we have the Ministry of Food welfare orange juice, which is in fact a concentrated juice, and national rose-hip syrup, which is similarly a product which has been concentrated from the raw juice or extract. In this case the concentrated product contains many times more vitamin C than the fresh juice. In a further category we have black-currant syrup and purée, which contain less ascorbic acid than the straight juice or pulp, but in which the vitamin C is remarkably stable.

As a means of comparing these figures the following table may be of use:

Substance	Ascorbic Acid in 1 oz. (28.4 ml.)
Ministry of Food welfare orange juice	57 mg.
National rose-hip syrup	57 mg.
Black-currant syrup	20 mg.
Black-currant purée	20 mg.

It is probably wise to regard only those products whose labels indicate a definite guaranteed ascorbic-acid content as having any appreciable vitamin-C potency.—I am, etc.,

Bristol.

VERNON L. S. CHARLEY.

Penicillin for Infected Hands

SIR.—The article by Mr. Frank d'Abreu, Surgeon Lieutenant Charles M. Flood, and Dr. Harold B. Hewitt on penicillin for the treatment of infected hands (Oct. 18, p. 603) should be publicized widely if only to cut the rate of absenteeism in these critical days. The letter by Dr. John P. Raw (Nov. 1, p. 707) on the local application of penicillin should also be noted for an economical and very valuable method. It was one that I introduced to the 84th General Hospital in October, 1944, using the 10,000-unit tablet of calcium penicillin because of its slower rate of absorption.

My method was to introduce 1 or 2 tablets into the abscess cavity and occlude the wound wherever it was possible with elastic adhesive bandage, leaving it unattended for 24–48 hours. A second application of the tablets was sometimes necessary. Even after the first dressing it was remarkable to note the diminution in inflammation and induration around the lesion. The method was very valuable in the case of carbuncles and solitary boils. Quite often the central slough in a carbuncle would come away with removal of the first dressing.

I agree with Dr. Raw that the surrounding inflammation and induration seem to form a barrier to blood-borne penicillin and that the local application is much more effective.

Since my return to civilian practice I have continued to use this method and have only found it necessary to use parenteral penicillin in those cases where the abscess, boil, or carbuncle is in its very early stages—that is, before the barrier effect is set up.—I am, etc.,

London, E.4.

H. WINCH.

SIR,—I read with much interest the method of local penicillin treatment as described by Dr. John P. Raw (Nov. 1, p. 707). I have used this method extensively for the past three years with outstanding results. I first treated cases of R.N. personnel with the 10,000-unit tablets as issued to the Services. Hand and foot infections were successfully treated with a minimum of incision. The treatment of tendon-sheath infection was very satisfactory. In most cases pus formation had ceased in 72 hours and healing and function were complete in about 16 days.

The most outstanding case, however, was that of a farmer with a deep palmar infection. The hand had the colour and contour of a boxing glove, with severe lymphangitis and oedema extending to the axilla. Four 10,000-unit tablets were inserted deep in the slough situated in the centre of the palm, and a small gauze dressing covered with G.P. tissue was applied. Within 12 hours serum and lymph were pouring from the slough area, and the slough came away the following day. The contours of the hand and arm were restored in 24 hours. In 72 hours active movements of the fingers were encouraged. With difficulty I restrained him from resuming full duty on the seventh day.

To facilitate the introduction of the tablet I thrust a grooved director deep into the septic area, place the tablet on edge in the groove, and push it on with a probe. The point of the director is depressed and the tablet runs over the end and remains. The director and probe are then withdrawn. The method is very useful in the treatment of breast abscess, and the size of the incision can be greatly reduced. In some cases of breast abscess I have combined local treatment as described with twice-daily doses of 300,000 units. I am not yet satisfied that the results are an improvement on the local method alone.—I am, etc.,

Alexandria, Dumbartonshire.

WILLIAM SCOTT.

Road Accidents

SIR,—Dr. E. Granger (Nov. 1, p. 709) appears perhaps to confuse the activities of the tongue and of the mind. High output of the one is not always accepted as evidence of good functioning of the other, and the mind of the silent driver may be better occupied than by trivial conversation. Does Dr. Granger feel less safe when in public-service vehicles than when driven by his garrulous acquaintances, and would he advocate, for safety reasons, that the drivers of buses and coaches should sit with the passengers, in order to enjoy the benefit of distracting conversation?

The apparent attempt to discredit the saying, "Don't speak to the man at the wheel," which of course goes back long before motor-car days, is a poor contribution to make to road safety. If, as your leading article suggested, medical men in general are seriously perturbed about road accidents, they may be interested to know that they can make some positive contribution by joining, for a very modest subscription, an association which neither supports nor is supported by any sectional interest, but which exists solely for the quite praiseworthy motive of the promotion of safety and the preservation of life on the roads.—I am, etc.,

London, N.W.8.

R. J. CLAUSEN.

B.C.G. Vaccination under the Red Cross

SIR,—With more than half a year's experience of B.C.G. vaccination in several European countries the Danish Red Cross is now in a position to give a fairly detailed account of its work in this field. Starting with Poland it has extended its work to Yugoslavia, Hungary, Austria, and the American and British zones in Germany. The sum allotted to this work is 3.5 million Danish crowns, and it is actively supported by the Danish Government and the State Serum Institute, whose chief, Dr. Ørskov, has published a commendatory article on B.C.G. vaccination in the September number of the *Journal of the Danish Red Cross*.

The work has hitherto been carried out by 15 teams, each composed of one doctor and two nurses, but the ultimate target is 60 such teams. Denmark cannot alone supply as many as 60 doctors trained in B.C.G. work, and such experts are therefore being recruited in Norway and by sending doctors from various other European countries to Denmark, where they are initiated into the technicalities of this work. In principle everyone from the age of 0 to 80 is eligible for B.C.G. vaccination provided he or she is tuberculin negative, but as—in Poland, at any rate—practically everyone over the age of 25 is tuberculin-positive it is under this age that this work is confined in practice. This vaccination costs only about sixpence per head.

In order to provide an adequate supply of fresh vaccine the Danish Red Cross has purchased three aeroplanes to carry it to different parts of Europe. In Yugoslavia the Danes have handed over their work to the Yugoslav Government after