the corresponding vitamin A is an integral and necessary component of the rhodopsin cycle. Its place in the cycle may be expressed in some such diagram as Fig. 5.

In the eye, part of this isomerization may be accomplished by light, but this is probably not the most important way in which the retina obtains the active isomer. For one thing, it should be noted that vision continues very well in yellow, orange, and red light, in which no isomerization takes place. Furthermore, there is little opportunity for light to isomerize retinene in the eye, since ordinarily retinene is removed almost as fast as formed, by reduction to

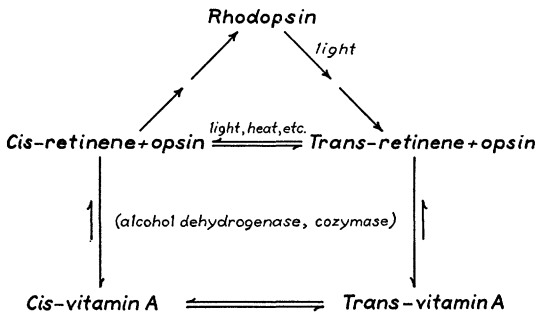

FIG. 5. The place of geometrical isomers of retinene and vitamin A in the rhodopsin cycle. Retinene enters rhodopsin as a cis-isomer, and emerges apparently as the all-trans isomer. This can be reisomerized to the active form by light or heat. More generally *in vivo* new supplies of the corresponding vitamin A are withdrawn from the circulation. On a long-term basis all the isomers of vitamin A are in equilibrium in the body.

vitamin A. For these reasons it seems probable that the eye must be continually supplied with the active isomer of vitamin A from the blood circulation, which in turn takes it from stores in the liver and, ultimately, from the nutrition. In the process of seeing, the retina continuously withdraws the active isomer of vitamin A from the circulation and returns to the blood the inactive, di-trans isomer. In this way the visual process is connected intimately with the metabolism and transport of vitamin A throughout the body.

It is probably not necessary to feed the active isomer to make it available in vision, for vitamin A apparently isomerizes in the body. After feeding either crystalline vitamin A or neovitamin A to rats, Robeson and Baxter (*5*) found that mixtures of both isomers were deposited in the liver. The rate of isomerization *in vivo* is not known, yet it seems to keep pace at least with such long-term processes as growth, since vitamin A, neovitamin A (*5*), and the cis-isomer of retinene prepared by Graham *et al.* (*8*) all are reported to yield comparable bioassays in growth tests in the rat.[4]

[4] Amending the original conclusion of Robeson and Baxter (*5*) that all-trans and neovitamin A have "substantially the same" biological potency in rats, Harris, Ames, and Brinkman (*12*) have recently reported that neovitamin A is 80.7% as potent as the all-trans isomer in promoting rat growth, and 71.5% as effective in causing the storage of vitamin A in the rat liver.

The experiments we have described introduce a new factor in the biochemistry of vitamin A—that of stereochemical specificity in its interactions with enzymes and other proteins. Certain of its reactions involve this factor acutely, others do not. We have already encountered an example of each kind: specificity in the reaction of retinene with opsin, relative indifference in the reaction of vitamin A or retinene with alcohol dehydrogenase. This type of relation will need to be considered in all future work on vitamin A metabolism.

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Making Names of Biological Taxa from Greek Stems

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The names applied to genera and higher taxonomic groups (taxa) in biology (including zoology, botany, and bacteriology) are frequently, even preferably, derived from the Greek. Appropriate transliteration is essential if the Latin name resulting is to be in good form. The Latins developed certain rules which they generally followed when adapting a Greek word to Latin usage. Presumably these rules are the ones to be observed in biology. As stated by Linnaeus in his *Critica Botanica* (Hort trans.): "When Greek names are transliterated into Latin, the equivalents used by the Romans from all time must be adopted in representing the Greek letters." And yet there is nowhere to be found a complete and sufficient summary of these principles in any of the three international biological codes of nomenclature, nothing adequate to guide in the formulation of *new* names from Greek stems. The statements appended to botanical and zoological codes are incomplete and in some cases misleading. There is in consequence much unwarranted confusion in the spelling of biological names. The bacteriologist is deeply concerned because he must constantly use the names proposed in all three major fields of biology.

A preliminary statement in the form of a recommendation relative to the transliteration of Greek to

Latin in the formation of the names of bacterial taxa has been issued by the Judicial Commission of the International Committee on Bacteriological Nomenclature (for the International Society of Microbiologists) (*1*). Some of the proposals do not agree wholly with those of Paclt (*2*) published recently in SCIENCE. This author points out some problems that will confront the zoologist who endeavors to follow certain suggestions made by Bonnet (*3*) relative to the use of *i* and *j*, and *u* and *v* in Latin words. He then proposes certain transliterations of Greek diphthongs in formation of Latin names of taxa. Although in general his suggestions are sound and in accord with classic and scientific precedent, some difficulties inherent in certain of his proposals should be pointed out.

The proper diphthongs in Greek are eight in number, five with ι and four with υ as the second letter. They are αι, αυ, ει, ευ, οι, ου, ηι, and υι.

There is substantial agreement that αι should become *ae* and οι become *oe* when transliterated. Occasionally, perhaps following the trend toward "simplified spelling," each of these diphthongs is incorrectly transliterated as *e*, with consequent confusion as to the meaning. For example, when properly transliterated, καινός ('new') is *caenus*, κοινός ('in common') is *coenus*, and κενός ('empty') is *cenus*. If all are transliterated as *cenus*, the key to the literal meaning of newly coined words is lost. In "American" English the dictionary gives 'cenogenesis' instead of 'caenogenesis' from *caenus*, 'cenotaph' from *cenus*, and 'cenobite' instead of 'coenobite' from *coenus*. With all transliterated as *cenus*, would *cenobium* mean empty life, or new life, or common life? Fortunately in this case we still recognize coenobium. The Greek αἷμα is properly transliterated *haema*, but we have such transliterations in bacterial names and epithets as *Hemophilus hemolyticus*. This particular mistransliteration causes no serious difficulty, however, as there are no Greek words in *hoem* to cause confusion.

The diphthong ει may be transliterated either as *i* or *e*. Paclt suggests that it should be rendered as *e* before a vowel and as *i* before a consonant. We have the generic names *Zea* from ζειά and *Dinosaurus* from δεινός ('terrible'). But one encounters difficulty with such a rule in the case of words like θετον ('sulfur'), which is practically always transliterated as *thium*, whence *Thiobacillus*. This transcription permits differentiation from derivatives of θειος ('divine') as in *Theobroma*. Strict application of Paclt's rule would lead to confusion.

The transliteration of ου as *u* is apparently satisfactory, although it sometimes causes difficulty for the unwary. The Greek πούς, ποδός = *pus, podis* is not uncommon as the last component of compound names, with the consequent confusion as to Latin declension, as in *Bacillus ornithopi* instead of *Bacillus ornithopodis* from *Ornithopus*.

Paclt also suggests that the Greek αυ and ευ preceding a consonant become in the Latin the diphthongs *au* and *eu*, but before a vowel they should become *av* and *ev*. The wisdom of this dictum may be questioned. The Harper *Latin Dictionary* lists 11 words transliterated from the Greek which in the latter had the prefix ευ followed by a vowel; in all these the diphthong is retained and the alternative spelling with *ev* listed as less correct. An exception is to be found in *evangelium* and its derivatives. Latin words with the first two letters *ev* are for the most part compounds with *e* as a prefix. It is suggested that the transliteration ευ = *ev* before a vowel be used only where there is good Latin precedent.

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The Intrarenal Venous Pressure

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It has been found that the intrarenal interstitial pressure (IRP) in dogs averages 25 mm Hg (*1*). Hence it was postulated that the pressure within all the fluid-filled tubes of the kidney, including tubules, lymphatics, capillaries, and venules, must exceed 25 mm Hg or else the IRP would collapse these several tubes and prevent fluid flows through them. In order to test the hypothesis, an attempt was made to measure the venous pressure above the epithelial lining of the renal pelvis.

A long 16-gauge needle was thrust through the body wall of large dogs and thence into the vena cava on the left side, opposite the entrance of the right renal vein. (Bleeding is minimal with the dog in the prone position.) Then the needle was manipulated into the renal vein. Next a saline-filled plastic catheter (nylon, OD, 0.95 mm, ID, 0.51 mm) was run through the needle, pushed through the renal hilus, and manipulated gently toward the cortex and up an interlobar vein. Working blindly, one failed in about half the attempts because the catheter's tip fouled the walls of an interlobar vein. But in the other half the catheter readily passed up an interlobar vein and into an arcuate branch. The position of the catheter's tip was determined at necropsy. The numerous venous collaterals in the kidney (*2*) are thought readily to drain away any blood which dams up behind the single catheter-blocked arcuate vein. An isometric manometer was connected with the catheter to give pressure readings when desired.

When the tip was successfully placed in an arcuate vein, the pressure here was found to be about the same as the simultaneous IRP as measured by the transduced equilibrium method (*3*). It averaged 24 mm Hg in 18 normal dogs. During the peak of glucose or urea diuresis, the arcuate venous pressure increased