

TABLE I.  
*Kidney Enlargement on High Protein Diets Fed with Varying Amounts of  
 Vitamins B and G.*

|                        | Protein<br>in diet | Yeast (gm.)     |     |     |                                         |                                   |
|------------------------|--------------------|-----------------|-----|-----|-----------------------------------------|-----------------------------------|
|                        |                    | 0.4             | 0.8 | 1.6 | 1.6+<br>3 drops<br>tiki-tiki<br>extract | 1.6+<br>7%<br>autoclaved<br>yeast |
|                        | %                  | Enlargement (%) |     |     |                                         |                                   |
| Nephrectomized<br>rats | 18                 | 57              | 52  | 64  | 60                                      | 51                                |
|                        | 90                 | 115             | 119 | 124 | 127                                     | 129                               |
| Difference             |                    | 58              | 67  | 60  | 67                                      | 78                                |
| Intact rats            | 18                 | -7              |     | 4   |                                         |                                   |
|                        | 90                 | 39              |     | 50  |                                         |                                   |
| Difference             |                    | 46              |     | 46  |                                         |                                   |

and intact rats fed high protein diets. 2. This enlargement takes place irrespective of the amount of yeast consumed. 3. Supplementing yeast with additional vitamin G or vitamin B does not lessen the enlargement. 4. The consistent enlargement found does not indicate any quantitative relationship between the intake of protein and vitamins B and G in reducing renal hypertrophy as suggested by Reader and Drummond.

#### 4482

#### Correlation in Development of Structures Associated with Transplanted Eyes.

VICTOR C. TWITTY. (Introduced by Ross G. Harrison.)

*From the Osborn Zoological Laboratory, Yale University.*

Eyes were transplanted in normal position between embryos (tail-bud stage) of *Amblystoma punctatum* and *A. tigrinum*, forms of contrasting size, and the animals reared until the approach of metamorphosis. The grafted organs retain their specific size on the foreign species, and are hence out of scale with the associated structures of the host. In response, the latter exhibits certain morphological adjustments, particularly in the brain, eye-muscles, and chondrocranium.

When the nerve of the large transplanted *tigrinum* eye makes normal connection with the brain of *punctatum*, the smaller species, there follows a hyperplasia of 10-20% in the gray matter of the

opposite half of the midbrain, while in the reciprocal combination, or with one eye totally extirpated, there is a corresponding hypoplasia of 5-10%. In the diencephalic optic centers changes in cell-proliferation are relatively unimportant, and often lacking. In the region of the chiasma (preoptic nucleus), however, there are almost invariably strong hyper- or hypoplastic changes on the same side as the grafted eye. This suggests the possibility that there is normally a homolateral innervation of this region by fibers from the retina, contrary to general belief. In animals with grafted *tigrinum* eyes the gray matter in the dorsal part of the diencephalon opposite the transplant shows a tendency, often quite pronounced, to shift ventrally as if to meet the ascending optic tracts from the large eye. It seems probable that the visual fibers exert an attractive influence on the cells of this optic center.

The eye-muscles, developing from the host, adjust their size in the direction indicated by the size of the grafted eye, although they never attain the size characteristic for the normal muscles of the eye in question. The hypertrophy or atrophy, as the case may be, is accomplished by changes in the number, rather than the size, of the individual fibers. The hyperplasia of fibers in the *punctatum* muscles developing upon a grafted *tigrinum* eye was found to average about 50%.

The cartilaginous eye-capsule, which develops extrinsically, generally assumes the size characteristic for the transplanted eye, rather than for the normal eye of the host. The size of the trabecula, which forms the lateral wall of the brain-case in the orbital region, is also correlated with the size of the adjacent transplanted eye. The *punctatum* trabecula next a *tigrinum* eye shows a very marked enlargement throughout most of its length. When the nasal placode is grafted also, the effect extends to all elements of the capsule of the nose.

#### 4483

##### Seasonal Variations in the Interstitial Tissue of the Testis of the Horned Toad (*Phrynosoma solare*).

RAYMOND F. BLOUNT. (Introduced by J. S. Nicholas.)

*From the University of Arizona and the Osborn Zoological Laboratory, Yale University.*

A histological study has been made of a series of *Phrynosoma* testes taken at frequent intervals throughout the year, with special