

accelerating the growth of some animals far beyond the rate that the reported "normal curves" or average observations have led one to expect, it has become pertinent to inquire whether the current "standards" for human growth represent anything approaching the best attainable. It is customary to assign variations from the "standard" to little understood idiosyncrasies, whereas the progress of science is directed to the explanation of deviations from the expected. Thus, allergic manifestations in man are no longer properly described as inexplicable idiosyncrasies. A duty therefore arises to discover, if possible, the antigenic or sensitizing substances in the environment or intake so that they can be either avoided or rejected.

Similarly has appeared the desirability of passing on the conventional standards of child welfare, notably those relating to the gains in size. One may well ask, furthermore, what the indexes shall be. Are body weight or body length to supply the criteria? Or are there perchance other physical measurements or chemical data that give a better insight into what is represented by growth and development? Enough statistics have already been gathered in recent years to indicate that some revision of the current assumptions is called for. The "overweight" that is being reported for many children in school presenting superior advantages probably represents an approach to the optimal size for age rather than any disproportionate and therefore undesirable physique. It has been observed<sup>1</sup> that the physical measurements of the group of intellectually gifted children in California, reported by Baldwin,<sup>2</sup> are in all probability more nearly the standard that should be attained by all children.

The effect of diet, apart from environmental factors, on the gains of infants has recently been indicated by the experiments of Daniels and her co-workers<sup>3</sup> at the Child Welfare Research Station of the State University of Iowa. Two groups of babies receiving feedings of modified cow's milk, one with cod liver oil and another without it, have been examined from the standpoint of growth as exemplified in gains of weight and also in the amounts of nitrogen, calcium and phosphorus retained. Thus the claim of mere gains or losses of water could be checked. The infants receiving the cod liver oil as a supplement not only weighed more at the same age than those who were not so supplied but were considerably heavier than the accepted standards for infants of their respective ages and birth weights. There was also a parallelism in the better growing babies between the amounts of the important tissue building elements—nitrogen, calcium and phosphorus—retained, thereby indicating an appropriate incorporation of these construction materials into the structure of the organism. The unique components of the cod liver oil are, of course, the fat-soluble vitamins A and

D. Hence the Iowa investigators venture the conclusion that conditions which make for better utilization of calcium and phosphorus will result in larger and physically better developed children.

The Iowa report accordingly insists that the accepted standards of growth for infants are too low. Realizing that weight measurements may have serious limitations or even be sources of error for establishing and evaluating physical development, Daniels and Hejinian<sup>3</sup> have sought other criteria and believe that they have found one standard in the output of creatinine. The latter can be accurately measured in the day's urine with the ordinary facilities of the clinical laboratory. The output of creatinine is regarded by many as a measure of the active protoplasmic tissue; and there seems to be a direct relationship between the output of creatinine and the body weight, expressed by the so-called creatinine coefficient. Daniels and Hejinian found, as was to be expected, that the output of creatinine increases as infants grow older. Among the Iowa children whom they examined, the increase was gradual in some cases; in others there was a sudden increase between the third and the sixth month of age. This appeared to be coexistent with the greater muscular activity of the infant. After comparing the various available relationships, it is suggested by Daniels and Hejinian that the relation of creatinine output to body length may give a more nearly accurate measure of a child's physical development than is shown by his creatinine-weight coefficient or his height-weight relationship. If such conclusions can be established, they may lead to a more rational method of evaluating and treating the so-called undernourished child.

#### RADIOACTIVE WATERS AND SOLUTIONS

Whenever a new substance is identified by the research of chemists, whenever a new force is developed through the investigations of the physicists, whenever a philosopher propounds some new concept in the field of thought or mental activity, an inspired charlatan or promoter is likely to seize on the substance, the device or the idea and exploit it for the cure of disease as a means of personal gain. The history of medicine is replete with records to substantiate this statement. Gold cures, electric cures, magnetic cures, radium cures, and cures by all sorts of means of reenforcing the power of suggestion, have been collected by the hundreds and their names carefully indexed in the files of the Bureau of Investigation of the American Medical Association.

Not many years have passed since the Council on Pharmacy and Chemistry, basing its decision on the then available evidence, admitted to New and Non-official Remedies various preparations containing in

2. Baldwin, B. T.: *Anthropometric Measurements of a Group of Gifted Children: Genetic Strides of Genius*, Palo Alto, Calif., Stanford University Press, 1925.

3. Daniels, Amy L., and Hejinian, Lucea M.: *Growth in Infants from the Standpoint of Physical Measurements and Nitrogen Metabolism*, Am. J. Dis. Child. 37: 1128 (June) 1929.

solution radium or radium emanation, and various devices for causing radium emanation to pass into drinking water. True, the evidence was not extremely well controlled or profuse in amount, but there seemed to be a demand by physicians for such preparations and the Council considered it worth while to set up at least minimum standards of radium content or radium activity. Actually, innumerable preparations were on the market which contained insufficient radium to have any demonstrable effects. There were jars for conferring radioactivity on the waters they contained with not enough radium in the walls of the jars even slightly to disturb the leaf of an electroscope. A considerable period of time has now elapsed since such preparations first became available. The evidence in support of the contention that radioactive drinking waters are useful for the control of disease or for the benefit of human health has not been profuse in amount or inspiring in scientific value. Indeed, a survey of more recent publications inclines to a dismissal of the entire matter as unproved and unsubstantiated. For this reason, no doubt, the Council on Pharmacy and Chemistry has issued the following statement:

From an examination of the available evidence, it appears that the value of the internal use of radium solutions or of water containing radon in chronic arthritis, gout, neuritis and high blood pressure is not demonstrated by controlled clinical evidence; that in spite of many years of trial, acceptable evidence has not become available and until such evidence does become available the Council has decided not to accept generators for the production of water charged with radon or radium solutions intended for intravenous use.

The announcement by the Council on Pharmacy and Chemistry disposes of the claims made for all sorts of solutions and for the devices to be used in preparation of such solutions, whether they contain considerable amounts of radium or merely enough to confer activity resembling the flavor of chicken soup when the chicken has had to do double duty as stewed chicken and chicken soup flavor. Today there are offered both to physicians and directly to the public solutions of radium and of radon, for drinking, for bathing and for injection, with claims of virtue not only in the conditions mentioned in the report of the Council but also for anemia, rejuvenation, regeneration, leukemia, boils, blackheads and pimples. Rejuvenation has become a catchword for promoting all sorts of strange preparations and apparatus. The venders capitalize suppressed wishes and desires and exploit all that the power of suggestion is able to do for the impotent. This they do, let it be emphasized, whether or not the devices provide any considerable amount of radium activity. But the statement by the Council settles the matter regardless! In one of the dialogues of the two Black Crows, Moran imitates the blowing of a trumpet. After a few moments Mack says: "Even if that was good I wouldn't like it." Of the radioactive drinking waters it may now be said: "Even if they did have some radioactivity, there is no evidence that they would have any value."

#### THE TREATMENT OF ASTHMA

The present-day treatment of asthma can scarcely be described as involving any well standardized or universally dependable procedure. This statement will probably be admitted by most physicians, even if the newer studies on the interrelations of bronchospasm to anaphylaxis are taken into account. Detectable allergy at best accounts for only a fraction of the cases of asthma that come under observation. A recent careful compilation of more than a thousand asthmatic patients in an eastern clinic has indicated a possible relation to some sort of extrinsic antigen in somewhat less than half of them at most. This includes such factors as "pollen asthma" and "animal asthma." Such failures to explain the disorder on the basis of extrinsic exciting causes make it easier to appreciate why the search for foci of infection as the possible "trigger mechanism" has been so active.

It is doubtless true that many patients with asthma have well defined lesions in the nose, throat or sinuses; consequently some clinicians have considered the bronchial spasm to be merely a reflex effect of a local stimulus arising in the upper air passages and transmitted through various nervous channels to the sympathetic trunk in the neck.<sup>1</sup> This point of view is largely responsible for the current tendency to secure remedial effects by operations on the nose and throat, as well as by removal of foci infection about the teeth. There is little doubt that in some instances such operative treatment has promoted the general health of the patients and actually brought relief from asthma, even though only temporary. At the Massachusetts General Hospital in Boston, Rackemann and Tobey<sup>2</sup> have undertaken a statistical consideration of the operative treatment of asthma, particularly in relation to the elimination of foci. It is evident from their data that the presence of foci bears little relation to the outcome of the asthma. Many of the patients gave a history of previous operations on the nose and throat without regard to the cause of asthma as found. About one fifth of the asthmatic persons examined showed infected, abscessed teeth; but the end-results of the asthma were the same whether the teeth were left in or extracted. Local treatment of the nose, throat and teeth had apparently brought about permanent relief from asthma in about 5 per cent of the cases. Beyond this the results of operative intervention, including removal of septal spurs or large turbinates and radical drainage of several sinuses at the same time, are frankly disappointing.

From the present ignorance one gains the conviction that any wholesale introduction of operative treatment for asthma does not have any justification and leads to undesirable disappointment. Removal of obvious

1. Sluder, Greenfield: Asthma as a Nasal Reflex, *J. A. M. A.* **73**: 589 (Aug. 23) 1919.

2. Rackemann, F. M., and Tobey, H. G.: Studies in Asthma: IV. The Nose and Throat in Asthma, *Arch. Otolaryng.* **9**: 612 (June) 1929.