

tioned of these hosts, the burrowing owl (*Speotyto cunicularia*), was seen frequently at low altitudes in areas where the plague epizootic was in force. The association of burrowing owls with colonies of ground squirrels is a well-known fact, and the obvious possibilities of contact between them need hardly be mentioned.

(3) On June 28, 1941, a specimen of the burrowing owl taken on the El Tejon ranch about five miles west of the plague area yielded 70 individuals of *E. gallinacea*, which upon mass-inoculation into a test guinea pig proved to be infected with plague organisms. A post-mortem examination of the owl could not be made at the time, but the possibility that this bird was the source of infection for these particular fleas seems remote, as it is generally agreed that birds are not susceptible to plague. This is apparently the first record of a bird host as a carrier of plague-infected parasites, and the first demonstration of natural plague infection in this species of flea. Experiments are now in progress to determine the vector efficiency³ of this flea.

As long ago as 1909 Rucker⁴ suggested that the burrowing owl might play an important part in the dissemination of plague as a carrier of infected fleas, but his remarks were not supported by any direct evidence. More recently Jellison⁵ has discussed the rôle of predatory birds in the spread of plague and has shown that rodent fleas of various species are frequently transported on freshly killed hosts to the nests; however, in no instance was the presence of plague established. The fact that plague has now been isolated from a species of flea common to both rodent and bird hosts, and from specimens actually obtained from a bird, finally lends supportive evidence to an old theory and adds another complicating factor to the epidemiology of plague.

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THE TERM "EUTHENICS"

WHEN the charter for the establishment of the Iowa Child Welfare Research Station was prepared, I was

in favor of using the term "euthenics," defined in Webster's dictionary as "the science having to do with the betterment of living conditions to secure more efficient human beings," as a term coordinate with the term "eugenics." In common language, eugenics would then denote the science and art of being well born, and euthenics the science and art of living well or wise living. This would have been very appropriate, but at that time we had to win the popular approval of the legislature and the people of the state so we fell back on the easily understood term "child welfare" and gave it a new connotation by centering it upon scientific research. Now that child welfare or child development is a well-established movement, both theoretical and practical, I would again advocate the use of the single technical word euthenics to denote scientific procedures within this great area.

We may speak appropriately of the science of euthenics or the art of euthenics depending upon the point of view. In the former case, the question arises as to whether there is or can be such a science of well-being. We immediately recognize that practically all the sciences contribute to this subject, as in medicine, engineering, economics, psychology, physiology, sociology and education. The question then arises: Can the salient interests and contributions from each of the sciences be selected and coordinated into a specific applied science? Likewise we may ask: Can we recognize a definable and significant area to be designated as the art of well-being? It is well recognized that such applied arts as education, sociology and mental and physical, individual and social hygiene center about this issue. The question then arises: Can the salient interests and contributions from all such sources be selected and coordinated into a specific applied art? On both of these issues, the time would now seem ripe to recognize an affirmative answer.

In other fields the term "psychology" is made to function, as in the psychology of music, the psychology of art, the psychology of speech, the psychology of dramatics, the psychology of athletics or the psychology of advertising. This terminology is justified on the ground that it is the function of psychology as a science of experience and behavior to select, integrate, organize and foster interests developed in all other sciences pertaining to the subject and to take the initiative for the conduct of research within these specific fields of applied science. The term "psychology of music" has the advantage of having made the best contacts with musical education and other musical enterprises. Within one year four textbooks under the same title, "The Psychology of Music" were published. That term has gained full recognition as a coordinator of all the scientific approaches to the

² M. A. Stewart, *Jour. Econ. Entom.*, 25: 165, 1932.

³ C. M. Wheeler and J. R. Douglas, *Proceedings, Soc. Exp. Biol. and Med.*, 47: 65-66, 1941.

⁴ W. C. Rucker, *U. S. Public Health Reports*, 24: 1225-1238, 1909.

⁵ W. L. Jellison, *U. S. Public Health Reports*, 54: 792-798, 1939.

theory and practice of music. On this analogy we might speak of the psychology of child welfare or the psychology of child development. But this would hardly be appropriate in view of the large number of strong independent trends in other sciences within this field.

There is still another analogy which is illustrated by the term "musicology," which is now coming into use to designate all scientific approaches to the science of music. It already claims a number of distinct fields, such as the history of music, the theory of music, musical anthropology, the science of composition, phonetics and acoustics. Can euthenics be thus recognized as a comprehensive term within which a number of specific areas may function?

The term "eugenics" is now well established for both scientific and practical purposes as the science of being well born. This is a happy term and defines adequately one specific area in the immensely larger field of genetics. It is generally restricted to this one aspect of human genetics. It would be well if we could establish a term which would be an exact companion piece to denote the area of the development of well-being. The term "euthenics" seems to meet all the requirements for this.

Within the area of eugenics we recognize various segments; such as individual eugenics and racial eugenics, and various areas pertaining to controlling factors; such as eugenic birth control, eugenic climate and eugenic legislation: so in euthenics we might recognize logical divisions, such as child euthenics, adult euthenics and racial euthenics; and various areas pertaining to causal factors, such as medical euthenics, ethical euthenics and legislative euthenics. For all such purposes such terms as child welfare and child well-being would seem to be partial, inadequate and cumbersome.

As we make satisfactory distinctions between theoretical, experimental and practical eugenics, so we might to great advantage distinguish between theoretical, experimental and practical euthenics. A relatively new term such as this is something of a red rag because it is new. But like the child who takes pleasure in pronouncing long words, the educated public would soon recognize the appropriateness of the derivation of this word and quickly give it a place in the language of daily life to designate a field of universal human interest.

The adoption of this technical term would not discourage the continued use of such terms as child guidance, child welfare and child development, but would tend to give each such term a more specific connotation.

As in eugenics a person who is devoted to that science is spoken of as a *eugenicist*, it would be con-

venient to have in the field of euthenics the provisional designation *euthenist*. We would hardly think of calling such a person a child developer. The listing of eugenics in the university catalogue might have some advantage over the present practices without any sacrifice of present interests. It would be advantageous to have such a technical term in the various rosters of the sciences.

As indicated above, the moment for the establishment of the mother institution of child welfare research stations was not a propitious moment for reinforcing the term "euthenics," but may it not be that the present time is the psychological moment to clarify the issue in the light of the extraordinarily rich experience gained within this field in the last twenty-five years? Scientists can look at the situation in an entirely different light now than they could before that movement began to crystallize.

And may we not also find it useful to distinguish between the science of euthenics and the art of euthenics? Each of these two distinct points of view is now clearly on the horizon as a fascinating, mandatory and profitable field of research which may be well centered and clarified in the interest of the theory and practice of wise living.

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ONE UNUSUAL OBSERVATION IN THE AURORAL DISPLAY OF SEPTEMBER 18

RECENTLY in discussing the auroral display of September 18 last with Dr. Harlan T. Stetson, I called attention to the amazing nearness of the overhead streamers at one time. Dr. Stetson explained that such an observation was not likely to be accepted, perhaps because of the nature and method of production of the streamers.

I am therefore making this belated record of certain of my observations on September 18. The observations were made near and about Bexley Hall, 50 Massachusetts Avenue, Cambridge.

The streamers were first observed somewhat after 8 P.M. At this time there were two quiet streamers in the north slightly to the west. These seemed to connect near the zenith with a searchlight beam emanating in Boston. Shortly the streamers began to cut capers, first by blinking on and off. From then until near midnight several distinct phenomena were seen. (I will not discuss the curtain of colored light which appeared so beautifully twice above the northern horizon, because there is nothing unusual to report, and in attempting such might disclose disqualification for reporting on the apparent nearness of the streamers at one time.)

Some of the general observations are as follows: