chloral hydrate and methyl violet of great value.

Methyl Violet—Acetic-chloral Hydrate.—To an almost saturated solution of chloral hydrate in distilled water add 10 per cent. volume of glacial acetic acid and enough dry methyl violet to make the liquid a bright violet color. This stains nuclei very quickly, and does not stain slimes so as to hinder observation.

The balsam used in mounting is oven-dried and then dissolved in pure cedar oil.

F. L. Pickett

Botanical Laboratory,
Indiana University,
August 10, 1912

Personal Registration of Family Memoranda: A Plea for the Making and Preserving of Homely Annals

Human efficiency is recognized to be the most desirable asset. Every one admits the expediency of attaining and perfecting individual capabilities.

Latent capabilities, inherent energies, are of use only when rendered available. To render them available and serviceable, are demanded full opportunities plus expert help in development and elaboration.

Conservation of inherent potentialities in all lines of natural resources has become an avowed principle in American industrial energizing. The first step in systematic procedures is to collect significant facts. Till data become numerous enough, sufficiently uniform and precise, no safe inferences and reliable conclusions can be formed. To achieve ultimate truth is only possible through intelligent, persistent and world-wide cooperation. Such methods for laying the foundations of practical certitude are being applied to most lines of endeavor and economic progress.

The one conspicuous exception is the study of human efficiency. Here methods are so lacking in system, so disproportionate, as to disappoint reasonable expectations.

Bureaus of animal industry are proceeding with excellent system and thoroughness. Their methods already serve as models; their findings form the basis for important economies.

Especially defective are the means employed for preserving significant facts bearing on the life history, physical, psychologic, domestic and other factors of personal advancement in human beings.

This conclusion was reached while initiating a research the data for which were found unattainable. Conference with leading workers in economics, psychology, anthropology, clinical medicine and other promising sources of information confirmed a growing disappointment.

Here, then, we are halted at the threshold in a quest for fundamental facts essential to enlightenment. Deplorable neglect is discovered in the one department of research from which results of the gravest importance should evolve.

Wholly inadequate are the registrations of birth, marriage, death, and especially of the accompanying circumstances. Even such bare outlines of human history as are attempted by municipalities are admittedly partial, inexact, far from complete. The churches make some effort to preserve a few facts with little difference in result.

Carelessness in this particular is nearly as pronounced among the well-to-do and presumably intelligent as among the very poor and shiftless. Upon inquiry among the more liberally endowed, it will be found that few persons take the trouble to make and preserve any sort of systematic registration of incidents and circumstances of personal history. Experts in genealogy are put to all sorts of shifts to secure information.

Archaic as it seems, the family bible is still compelled to serve more or less inexpediently for the purpose; also legal instruments, such as wills, deeds, property transfers, personal and other epistles, and the like disconnected and accidental avenues of evidence.

The whole forms a pitiable, heterogeneous, but the only available source of information in what may prove to be a vitally important direction.

Data are especially meager on three groups of subjects:

1. Antecedent personal history making for knowledge of ancestry, and inheritance, including salient characteristics of individuals and the family.

2. Earliest phenomena of growth and development, including traits, tendencies, tastes, etc., constituting "infant records," which should be carefully registered at the time of observation.

3. Personal history of each member of the family from birth to present age and from all reputable sources; not only of the phenomena of infantile and later development and changes, but also accurate data on physical and other disorders, illnesses, accidents, repairs, corrections, etc.

Only by the aid of light thus shed is it possible to form present or future determinations.

In a complete registration many other points should be covered, such as: full and accurate accounts of illnesses, injuries, peculiar physical and mental occurrences, when they occur; and, equally important, the nature and character of repairs or corrections, when made. All these are of vast utility to the individual.

The foregoing category of findings, if made of a large number of individuals and on a uniform system, would, it is obvious, constitute invaluable data for use by the scientific research worker, especially the physiologist, the psychologist, eugenist, human-economist and sundry others.

There is yet another grouping of facts deserving of encouragement: no less than what may be included in the term, "special happenings." This may embrace the whole realm of momentous incidents, memorabilia, liberally interpreted. Among these may be mentioned lines of education pursued, special types and kinds of training, evidences of predilections, aptitudes as they appear, develop or change; decisions made, purposes carried out well or ill, volitions, vocations, scholastic records, etc.

Finally it may be said, there are few or none but would welcome and make use, less or more, of such records, did they exist ready made.

Whatever is thus worthy is worth the effort to construct. It would contribute much to pleasure, satisfaction, sustained and increasing interest and self-respect.

The practical utility of such *annals* to each one is clear. As a contribution to scientific data a few thousands such would prove priceless.

I would suggest that the head of each and every family, however small, keep an accurate, succinct record of essential facts and opinions. In order that these should be uniform the book should contain carefully prepared blanks, questionnaires, memoranda of salient points, etc., which should in each instance be covered to make the records complete.

Such a family history register I have carefully outlined, with kind help from eminent specialists in biology, psychology, eugenics, economics, euthenics, clinical medicine and genealogy. No family record book has as yet been published which altogether meets popular requirements. The "life history album" of Sir Francis Galton is unsurpassed for purely scientific findings, but not adapted to popular use. There are many excellent "baby books" of limited scope, chiefly sentimental.

To serve domestic and economic as well as scientific purposes, blanks and questionnaires should cover (concisely) pretty much all points in human interests, otherwise it will be difficult to induce heads of families to realize the *practical advantages* accruing, which are of the utmost value, and to take interest in making the notes.

Wide cooperation is essential; scattered data are valueless; many thousands of facts are required.

In an ideal register several features must be included appealing to sentiment, obvious utility and commendable self-complacency. For popular acceptance certain points are desirable, comprising, among others:

Blanks for *index* (including marriages, births, deaths, dates, places, etc., with page references to additional inscriptions in the book).

Chart for genealogy (*e. g.*, to about the eighth generation—direct ascendants' names

to correspond to a number and kept on special blanks; collaterals to be registered on separate blanks).

Blanks for *baby records* (growth, development, etc., complete in physical and psychologic features, but not too exacting—extra data to be inscribed on special pages provided).

Blanks for *personal history* (of each individual of over one year of age, from birth to time of writing—later occurrences to be placed under "special happenings").

Blanks for *phenomena of attack of illness, injury or operation* (when they occur—to be filled in by physicians).

Charts for *weight and height* (also tables of standard weights and heights). Blanks for *observations and findings of specialists;* charts for *special clinical data* (eye, ear, nose, throat, etc.); blanks for *laboratory findings* (urine, feces, blood, sputum, etc.); pictorial charts for *anatomical memoranda;* blanks and charts for *dental memoranda;* special blank for *photographs* (interesting to preserve photographs at different ages, of children and adults); and, among the most important, pages for *special happenings,* notable occurrences of personal history, including memorabilia of tendencies, trends of thought, genesis and course of purpose, cherished or revealed potentialities, ideals, conduct, self-discipline, lines of development, of capacities, education, achievements, distinctions, renunciations, conservations, etc., constituting a picture of the evolution of personality.

The whole to afford accurate data, whereon alone can be based many present and future determinations, mental and voluntary processes, decisions and economies in health, mental and physical, legal and insurance precisions, inheritance, etc.

The author will be grateful for any comments, criticism and especially for encouragement.

J. MADISON TAYLOR
PHILADELPHIA, PA.

HERMAPHRODITE FEMALES IN LYCHNIS DIOICA

SOME years ago Strasburger[1] reported that female specimens of *Melandrium rubrum* Garcke (a form of *Lychnis dioica* L.) growing in his experimental garden at Bonn, were changed to apparent hermaphrodites as a result of infection with the anther-smut, *Ustilago violacea.* The infected plants had fully developed stamens, but the sporogenous tissue of the anthers was completely replaced by the spores of the smut. Strasburger suggested that all the cases of hermaphroditism which had been occasionally reported in this species were probably due to infection by *Ustilago.*

When I discovered functional hermaphrodite mutants in *Lychnis dioica* and demonstrated by numerous genetic experiments[2] that these functional hermaphrodites are modified males, I believed that Strasburger had misinterpreted his material and that his hermaphrodites which resulted from infection by *Ustilago* were produced by the development of female organs in the male, and not as he supposed by the development of male organs in the female. Strasburger was correct, however, as to the nature of his apparent hermaphrodites, as demonstrated by two facts which he has recently pointed out,[3] namely, (*a*) that the females are not always completely infected, in which case the uninfected branches bear normal female flowers, and (*b*) that infected males show no development of the female organs.

Professor Doncaster, of the University of Cambridge, England, has tested the influence of *Ustilago violacea* upon *Lychnis dioica* by artificial infections, and his results completely corroborate the conclusions of Strasburger. He sends for publication in SCIENCE the following brief account of his experiments:

It is well known that *Lychnis vespertina* is diœcious, but that all plants infected with the fungus *Ustilago* have well-developed stamens. Some of these plants have the typical male form, without trace of ovary; others have a vestigial ovary and styles in addition to the stamens and anthers filled with *Ustilago* spores. This suggests that when a female plant is affected by the para-

[1] *Biologisches Centralblatt,* XX., 657 et seq., 1900.

[2] *Botanical Gazette,* XLIX., 110, 1910.

[3] *Jahrbuch für wissenschaftlichen Botanik,* XLVIII., 427, 1910.