Cason, so as to be received by him not later than May 20.

WEDNESDAY, July 13, has been designated as Engineers' Day at the Golden Gate International Exposition by the San Francisco Engineering Council, which is sponsoring it as a red-letter day in the history of engineering achievement. The engineering profession is invited to attend this commemoration of the engineer's contribution to human welfare. This celebration will occur during the week of national conventions of the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers. It closely follows the national conventions of the American Institute of Electrical Engineers, the Institute of Radio Engineers and the American Association for the Advancement of Science. It closely precedes the national convention of the American Society of Civil Engineers and Western Chemical Congress. As all these meetings are to be held in San Francisco or vicinity, the time and place is particularly appropriate. The program calls for a morning assembly on Treasure Island with an address by an internationally known speaker, an afternoon inspection of the outstanding engineering and industrial exhibits at the exposition and an evening banquet.

THE herbarium of the late Professor Glen P. Van Eseltine, botanist, of the N. Y. State Experiment Station at Geneva, has been given to Keuka College, New York, and is now installed. Professor Van Eseltine had made a special study of Carex for some twenty-five years and the herbarium contains a large number of critically named specimens both of his own collection and of others obtained by exchange. The other specimens represent a large number of species found around Washington, D. C., and in central New York.

DISCUSSION

A CLASSIFICATION OF WEEDS AND WEED-LIKE PLANTS

A SERIES of discussions with various geneticists has led me to suggest a classification for weeds and weed-like plants. The word "weedy"—oftentimes used in quotation marks (Babcock and Stebbins,[1] 1938, p. 61)—does not always carry the same connotations to cytogeneticists as it does to taxonomists. The classification suggested below or some similar classification should remove the difficulty. While weeds and cultivated plants are included as two kinds of peregrinators, the initial division has been made on the spreading capacities of a species rather than on its association with man. The amount to which a species travels from place to place, whatever the cause, will determine the extent to which may be broken down the external barriers between previously isolated groups (species, races, populations, etc.). Plants which spread *with* man may be expected to exhibit the same cytological and taxonomic phenomena which are shown by those spread *by* him.

PEREGRINATORS (weeds and weed-like plants):

A. Cultivated plants
   Plants intentionally grown by man
B. Weeds
   Plants unintentionally grown by man, in fields, gardens, pastures, lawns, etc.
C. Ruderals
   Plants spreading into man-created habitats (barnyards, roadways, dumps, etc.) though not actually cultivated.
D. Nomads
   Plants spreading widely and rapidly even when not associated with man. Here belong many potential weeds and here apparently was the source of many of our weeds. Species for the most part of river valleys, seashores and other habitats marked by bare and shifting soils. This group forms a series of transitions to

NON-PEREGRINE SPECIES:

The bulk of indigenous floras

It is a remarkable fact (with very natural explanations) that geneticists have worked largely with peregrinators and taxonomists largely with non-peregrine species. In order to obtain the necessary pedigree cultures geneticists have had very largely to limit themselves to the adaptable, easily germinated cultivated plants like maize, snapdragons and primroses; to weeds and ruderals like Datura; or to genera like Nicotiana and Crepis the bulk of whose species are among the peregrinators of one class or another.

The ability to spread beyond external barriers which has made the peregrinators good material for genetical experiments has at the same time made them taxonomically difficult. When a taxonomist says that a species is "weedy" he usually means not that it necessarily grows in cultivated fields, but that it has the taxonomic phenomena associated with most weeds. These phenomena, while they have scarcely been discussed in scientific literature, certainly exist. When I recently pressed an able taxonomist for a working definition of a weed, he immediately replied, "A species which is very common, very aggressive, very variable and which clutters up herbaria."

Correlated investigations in taxonomy and cyto-

[1] E. B. Babcock and G. L. Stebbins, Jr., *Publ. Carnegie Inst. Wash.*, 504: 1–199, 1938.

genetics are already beginning to contribute to both sciences (see, for instance, Babcock and Stebbins, 1938, and Riley,[2] 1938). The integration of these two disciplines can go forward more smoothly if it is generally realized that they have worked with different materials as well as by different techniques.

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OAT HAY POISONING

IN eastern Wyoming cattle are occasionally poisoned by ingesting oat hay or oat straw. Sheep and horses are not believed to be affected. The first loss reported to us occurred in October, 1934, at which time twenty-nine head of cattle of both sexes and of all ages died within a few hours after eating well-cured oat hay. Since 1934 other cattlemen have reported losses under similar conditions. Losses due to oat hay have also been noted in limited areas in other states.

Investigators[1,2] at the Colorado State College have published two progress reports on oat hay and straw poisoning. Because oat hay brings about symptoms of asphyxia and death due to asphyxiation, they suspected hydrocyanic acid as the cause of death but were unable to show its presence in the feed and only rarely could show a trace of this poison in the paunches of animals which had died from eating oat hay. They found cyanide antidotes to be of no benefit.

In this laboratory, using toxic oat hay from Dayton, Wyoming, it has been found that eleven pounds of this hay will kill a 350-pound steer in about nine hours after feeding. A water extract of eleven pounds of the same hay caused another steer of similar size to go down with typical symptoms from which he later recovered. In both instances a chocolate brown color in the blood was observed. This was found, by means of the spectroscope, to be due to high concentrations of methemoglobin in the red blood cells. This was confirmed by the conversion of this pigment into reduced hemoglobin by the addition of hydrogen sulfide. The cells are not laked and the plasma remains clear and straw-colored. Another calf fed toxic oat hay from Gillette, Wyoming, showed no symptoms nor any methemoglobin in the blood six hours after being fed. Three hours later the animal was down with typical symptoms and a high concentration of methemoglobin was present in the blood at that time. This animal survived and the following morning showed no symptoms, nor could methemoglobin be found in a blood sample taken at that time.

[2] Herbert Parkes Riley, *Amer. Jour. Bot.*, 25: 727–738, 1938.

[1] Newson, *et al.*, *Jour. Am. Vet. Med. Assn.*, 43: 66, 1937.

[2] F. Thorp, Jr., *Jour. Am. Vet. Med. Assn.*, 45: 159, 1938.

The formation of high concentrations of methemoglobin in the blood of cattle poisoned with oat hay explains the asphyxial symptoms produced and also offers an explanation for the subsequent abortion in pregnant cows receiving sublethal doses of this feed, for during the period of partial asphyxia of the mother the fetus is probably killed by asphyxiation and is later aborted. The fact that the poisonous principle is stable towards heat and soluble in water will be of great value in its ultimate isolation and identification.

In Wyoming toxic oat hay or straw develops in restricted areas on heavy soils usually in the foothill regions. It is not known to us what influence, if any, the soil may have upon the development of the toxicant. Nor are we prepared at this time to suggest what influence climatic factors may exert. Meager records lend support to the belief that toxic oat hay or straw may be expected to develop on the same plot of ground. This point has not been confirmed experimentally. Poisonous oat hay may develop on dry land or irrigated farms. Acute deaths have resulted from ingesting the green oat plants in toxic areas. Preliminary investigations therefore indicate that the toxicant is formed during the oat-plants development. The localization of the problem suggests that local influences must be of basic significance.

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EARLY MAN IN WESTERN AND NORTHWESTERN CANADA

TWO discoveries made in Canada by the anthropological field party of the University of New Mexico in 1937 and 1938 have significant bearing upon the problems relating to early man in North America. The object of the field program was to locate sites for excavation, make a general archeological survey and look for evidence of early man in relation to glaciation and possible early migration routes from Asia. It is the opinion of the organizer that there is a need for more physical evidence of early American cultures and culture complexes. Arguments pro and con have been presented for the existence of man in North America during the Pleistocene or ice age. Therefore, it was thought advisable to form a definite program for work in the glaciated and unglaciated areas of western Canada and Alaska in order to correlate, if possible, some of the early cultures with glacial chronology. This work was supported by a grant from the Penrose Fund of the American Philosophical Society and by the University of New Mexico.

Yuma artifacts were found as far north as Ponoka, Alberta, about sixty miles south of Edmonton. Yuma sites were located in southeastern Alberta and south-