



Bluegrass or Bluestem?

GRASSLANDS of the western prairie region are in a state of dramatic suspense. Blighted by last year's unprecedented drought, large areas in them are now seemingly bare of life. They are, botanically speaking, public domain, unclaimed homesteads, which the first to come among plants, and the most tenacious to hold, may claim and keep as their own. Which will take them, lush bluegrass from the East, or hardier bluestem of the West?

When the five-year drought began in 1929, these pasture lands had long belonged to the immigrant bluegrass, encouraged by grazing and able to compete with the native prairie grasses as long as there was abundant rain. But when the drought reached its sky-seared, soil-bankrupt climax last summer, the bluegrass was the first to die. Now its place is empty. Will its children succeed it, or will offspring of the western grasses reclaim the heritage that was theirs in an earlier generation?

Studies conducted by Prof. J. E. Weaver of the University of Nebraska, and by his graduate aides Lawrence Stoddart and William Noll, suggest that the victor's spoils may go to the sons of the native-born; indeed, if water shortage continues, will almost surely do so.

Nearly a year ago, foreseeing what the summer might bring, the three ecologists began a program of careful observations of prairie vegetation under drought, which they continued throughout the blazing summer. In general, they found that fitness for survival in a drought-cursed land was determined by two things: ability to get water and, water once got, ability to keep it.

Bluegrass, not native to such an unkind clime, could neither keep what it

had, nor renew its supplies for long, since its roots are shallow. The native bluestem grass species, with roots that drill into the soil two or three times as deeply as do those of bluegrass, could tap reserve supplies, depleted as even these became, and so come through a lean year with life still in their clutch.

What was true of the deep-rooted grasses Dr. Weaver and his associates found even truer of other deep-rooted prairie plants. The prairie shoestring, big, lusty, blue-flowered legume, has roots sometimes sixteen feet long. It easily withstood the drought and bore a big crop of seeds, as though nothing unusual were happening. So also with

others of its biological brethren; though it is true that many of them were forced into abnormally early blossoming.

Two devices for hanging onto water once obtained demonstrated themselves strikingly. One is the reduction of leaf-area by rolling the leaves or other evaporation-defeating tricks; the other the retention of water by the "thickening" of the sap, until its resistance to further loss, in at least one plant tested, rose to the equivalent of sixty atmospheres, or a pressure of nearly half a ton to the square inch.

When stress-times come to the prairie, truly the toughest survive!

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PHYSIOLOGY

Female Sex Hormone Starts "Wild" Growth of Cells

BY MAKING cells grow "wild," the female sex hormone may play an important part in causing cancer. First definite proof of a long-suspected but unproved relation between sex and cancer has been found by a group of Canadian investigators, Prof. J. B. Collip and Drs. H. Selye and D. L. Thomson of McGill University.

"Our findings are at the moment without practical significance," says Prof. Collip.

But though scientists are not yet able to foresee how this discovery can be applied to human cases of cancer, they nevertheless view this progress as a valuable addition to knowledge.

Daily injections of the sex hormone for ten weeks produced in rats symptoms closely resembling the beginning stages of cancer growth, Prof. Collip and associates have reported (*Nature*, Jan. 12.)

Certain cells in the animals' bodies showed changes in their nature and growth that made them look, to the scientist's eye, like the wildly-growing cells of cancer. In the words of the scientific report, the animals' uteri showed "more or less complete metaplasia" or change of the "cylindrical secretory epithelium into a stratified squamous epithelium with cornification from which irregular buds penetrated deep into the stroma" or underlying tissue.

The female sex hormone has been suspected of possibly causing cancer or

at least being able to cause it ever since chemists discovered that this hormone and certain coal tars known to produce cancer are strikingly similar in chemical composition. Medical scientists have been trying to settle the point and one group of investigators found evidence strongly suggesting that the female sex hormone could produce cancerous changes. The results of Prof. Collip and associates are more definite, however.

Their discovery came in the course of investigating anti-hormone effects. The McGill group of scientists has found

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that after repeated doses of hormone from the anterior pituitary gland, the body builds up a resistance to the hormone, an anti-hormone effect. They were trying to find whether this anti-hormone effect would also be produced by repeated injections of the female sex

hormone when they discovered that excess amounts of the hormone did produce tissue changes similar to the beginning stages of cancer. In their experiments they used a hormone prepared by Dr. A. Girard of Paris.

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POPULATION

Number Aged Over 65 May Double in Next 35 Years

One Out of Every Ten Persons Will Be in This Group By 1970, is Estimate; Half Will be Dependent

THE NUMBER of persons over 65 years of age which will be affected by the legislation for old-age pensions now before Congress is expected to increase greatly in the next few years, doubling in number in 35 years.

America is rapidly growing older. Thirty-five years ago, at the beginning of the century, about 4,000,000 people in the United States were 65 or older. Today 7,500,000 persons are in that age group. By 1970, the aged will be increased to more than 15,000,000. This outlook for a rapidly aging population is revealed in figures presented to President Roosevelt by the Committee on Economic Security.

Thus, the report indicates, the problem of old-age security is one not of immediate relief alone, but of provision for a growing need in the future.

Not only are the numbers of old people increasing, as one might expect in a growing population, but the proportion of old people is also becoming magnified. In 1900, America had just a fraction over 4 per cent. in the age group over 65. By 1930, this proportion had increased to 5.4. But by 1970 the Committee expects the percentage to

have reached 10. Of every hundred men, women, and children in the United States 35 years from now, ten will be 65 years old or older.

If you are now a young man of 30, what are your prospects for the future? If you live for the next 35 years, you will then be one of the 15,000,000 people in the United States in the "old age" group. The chances at present are about 50-50 that you will be dependent, either on relatives, friends, or public charity.

Not so many people over 65 are finding employment as they did in the past. If you have been a long time with one firm, a survey has revealed, you are less likely to be dismissed than a younger worker. If you have drifted about a good bit from job to job, you will not have that advantage. In case you do lose your job, you are far less apt to secure new employment than younger workers are.

The Committee estimates that although 31.6 per cent. of the men over 65 were unemployed in 1900, that high figure has increased to 41.7 per cent in 1930. And the tendency is still upward.

Will you have saved enough to take care of yourself during your old age? That depends upon your present income. Five and three-quarter million families in the United States had in 1929 an income of \$1,000 or less. They were not able to put aside anything for approaching rainy days. Ten and a half million families, the most representative American group, made between \$1,000 and \$2,000 dollars. These families saved a total of \$750,000,000. A little manipulation of a calculating machine will show you that that seemingly large sum, when divided ten and a half million ways, gives a sum for each family of but \$71. How long could you live on less than a hundred dollars?

The man who lives to be 65 years old may reasonably expect to live 11 or 12 years longer. Women, at the same age, may expect to live 15 years. If you should be among the 15,000,000 who are 65 in 1970, and you wish to have an income of \$25 a month for the rest of your life, you should have saved, the Committee estimates, about \$3,300 or \$3,600, not \$71.

Only families having incomes larger than \$10,000 a year save as much as this amount on the average.

"If only this amount of income is allowed to all of the people of 65 years and over, the cost of support of the aged would represent a claim upon current national production of \$2,000,000,000 per year," the Committee reports. "Regardless of what may be done to improve their condition this cost of supporting the aged will continue to increase. In another generation it will be at least double the present total."

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PSYCHOLOGY

Children's Nicknames Merely Lead to Fights

CHILDREN'S nicknames, in 95 cases out of 100, have no value and merely lead to resentment, ill feeling, fighting and quarreling, Drs. Samuel Z. Orgel and Jacob Tuckman of New York City reported to the American Orthopsychiatric Association.

These scientists studied the nicknames of 235 boys and 75 girls, of average normal intelligence and ranging in age from 8 to 16 years, who live at a child-caring institution of the cottage-plan type sponsored by the Hebrew Sheltering Guardian Society of New York.

Only 3.5 per cent. of the boys and 4 per cent. of the girls had no nicknames. Girls use nicknames of the affec-

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