

SCIENCE NEWS

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THE FRUIT FLY IN HAWAII

THE United States has declared war on the Mediterranean fruit fly in Hawaii. With approval by President Roosevelt of a project to use \$80,000 of the funds, derived from the processing tax on sugar, of the Agricultural Adjustment Act, for a campaign against the fruit fly in the mid-Pacific territory, four Honolulu entomologists left September 7 for Washington, whence they will proceed to the jungles of Africa and Brazil in search of parasitic insects that prey on the fruit fly. The parasites, when found, will be brought to Hawaii and set free to attack the fruit fly, which for years has been the major obstacle to the growing of many fruits in this part of the United States.

The project is administered by the Bureau of Entomology, U. S. Department of Agriculture, in cooperation with the territorial board of agriculture and forestry, the University of Hawaii and the Hawaiian Sugar Planters' Association. Though the fruit fly does not attack sugarcane or pineapples, the territory's leading crops, it destroys or damages many soft-skinned fruits which otherwise would thrive in the islands.

The Planters' Association is releasing two of its entomologists, F. A. Bianchi and R. H. van Zwaluwenburg, on a year's leave of absence, to go to Africa with entomologists from the Department of Agriculture in this work. The territorial board is similarly releasing David T. Fullaway, its entomologist and chief plant inspector, who will seek parasites in Brazil. The fourth appointee is Noel Krauss, son of Dr. F. G. Krauss, of the University of Hawaii, who will also go to Africa.

Investigators in Hawaii have achieved many victories over insect pests by introducing parasites which have brought harmful insects under control. Among the pests thus successfully fought have been the sugar-cane borer, the sugar-cane leaf hopper and insects attacking the pineapple. The fight against the fruit fly, if equally successful, is expected to be of great benefit to the small farmers of the territory and greatly to increase the supply of fruits which grow so luxuriantly in Hawaii.

INDUSTRIAL SMOKE A MENACE TO AMATEUR AVIATORS

INDUSTRIAL smoke is a major obstacle blocking the real popularization of aviation: the day when the "little fellow" in his own private plane will take trips by air as he does to-day in his motor car. This in summary is the verdict of H. B. Mellor and L. B. Sisson, smoke experts of the Mellon Institute of Industrial Research.

"A wider use of private planes for ordinary transportation purposes in industrial regions appears more dependent upon securing air freer of smoke and smoke-prolonging fogs than it is upon the use of devices for blind flying and constant radio communication between ship and port."

The present blind-flying apparatus with which the fast commercial transport planes are now equipped would

bring the "little fellow" through smoke-obscured areas if he had them, but, adds the report: "The prospects for giving wireless service to small planes appear to be slim; the little fellow is not being encouraged to install wireless equipment because of the limited number of wavelengths allotted on the band for aviation. Addition of private flyers to the radio service maintained between ships and landing fields would cause congestion and hamper service to the growing number of large passenger, mail and express airliners."

As matters now stand, the pilot of a private plane may have a receiving set and can listen in on weather reports and the two-way communication between transport planes and airports, but he is unable to ask the field for directions that might keep him out of the path of commercial planes which are flying blind.

A private pilot therefore must still depend on his own eyesight. If he can not see a mile or more in every direction, he is in danger every time he gets within range of a well-traveled airline or busy landing field. With radio wave-lengths unavailable for the private flier, the solution of the problem involves the more careful location of future airports principally on the windward side of industrial areas.

Hand-in-hand with such a makeshift solution, is the more fundamental problem of reducing smoke in the industrial center. Increased electrification of ground transport, the use of inherently smokeless fuels in domestic and commercial heating plants and the installation of improved equipment now available for the combustion of potentially smoky fuels are the ways smoke reduction can be brought about. All three methods not only aid atmospheric visibility, but are in the direction of economy for the user.

EVOLUTION AND DIET AS THEY AFFECT THE TEETH

A GLOOMY future for the teeth of mankind—a future in which we shall have to pamper our mouths increasingly—is foreseen by Dr. William Seidel, of the U. S. Marine Hospital. Dr. Seidel bases his forecast on existing knowledge of the causes of various dental ills.

Evolution and diet are causing man to lose his teeth, in Dr. Seidel's opinion. Since evolution is an irreversible process, the human oral cavity appears destined to be forever afflicted with caries, pyorrhea and misplaced teeth.

Dr. Seidel points out that the loss of teeth through evolution has been going on for centuries. The great length of time is indicated by the fact that we have already completely lost 16 permanent teeth, having now only 32, while the usual number for mammals is 48. Individually one can lose a good many teeth at one séance with an exodontist, but the evolutionary process is slow, and it has required many centuries to produce such a change in our dentition. This evolutionary change dates back at least to the age of the caveman, and accompanying it there has been a gradual degeneracy of the whole

masticatory apparatus. The teeth themselves are not anatomically degenerate, with the exception of the third molars, which are often rudimentary; and as some persons do not have third molars, the evolution in dental economy may still be in progress.

Dental caries, or decay, is the most universal and common disease of mankind, and this condition, as well as that of malformed mandibles, is due to the fact that the masticatory organs of modern man have become unfitted properly to perform their functions, according to Dr. Seidel. Not only are the gums and teeth themselves insufficient, but the mandible and maxilla, together with their alveolar bone and sockets, are also deficient.

The mere fact of the high incidence of caries proves the inadaptability of the teeth to modern diet—an inadaptability that is hygienic in character rather than mechanical or physiological. Modern foods do not keep the teeth clean; and nature surely intended that they should be kept clean through natural processes rather than by modern artificial means which are found so necessary to-day. While cleanliness may not be the only factor in decay, it is considered to be the most important one.

In studying the cause of caries, investigators have taken two routes, those on one holding to the belief that bacteriological activity is the essential factor, while those on the other believe that the nutritional and physiological processes hold the clue, a theory supported to some degree by animal experimentation.

Aside from the nutritional aspect as a primary cause, modern diet has two very important secondary effects on the teeth: first, the decreased roughage results in failure in mechanical cleansing; and, second, the increased starch and carbohydrate intake forms plaques on the teeth which make ideal growth media for bacteria. At the present time, according to Dr. Seidel, the best definition and most tenable explanation of caries is that the condition is a decalcification due to the dissolution of the calcium salts of the enamel by the acids formed by the bacteria under the plaques. As the decay reaches the dentine, further deleterious action is produced in the more abundant organic matter there.

AMBULANCE SERVICE FOR ETHIOPIA

AN ambulance unit to aid Ethiopia in the event of war with Italy will, it is hoped, be ready to sail from London soon, according to a report in *The Lancet* by Dr. John M. Melly. A number of people with personal knowledge of conditions in Ethiopia and consequently realizing the appalling prospects have formed a committee to organize the ambulance unit. The object is purely humanitarian and without political bias.

The International Red Cross Committee in Geneva has been consulted and has asked to be kept in close contact with the London committee. The unit being formed will probably be incorporated with the British Red Cross Society if the latter decides to take action in the event of war in Ethiopia.

The skeleton of an Ethiopian Red Cross Society has been formed within the last few weeks, and the ambulance unit being formed in London will work with this society. As

Dr. Melly describes it, the personnel of the Ethiopian Red Cross consists of a few missionary doctors attached to the hospitals at the capital and a dozen or so Ethiopian girls who have been trained as nurses. These, however, could hardly be spared from the understaffed hospitals at Addis Ababa, and the fighting would be many weeks' journey away.

"Ethiopia has virtually no means of looking after her casualties," Dr. Melly points out. "The plight of the wounded on the field of battle would beggar description. The whole country is overrun with hyenas and jackals, apart from the larger wild beasts, and there is no doubt that those wounded who survived until night would become a prey to these animals."

The native doctors are absolutely untrained in the European sense of the word and there are not enough European medical men in the country to take care of all the sick in ordinary times. It is because of this situation that the ambulance unit is being formed. Much preliminary work and organization has been done, and volunteers are being interviewed daily and all preparations are being made in case of war.

It is planned to have the unit disembark at Berbera, in British Somaliland, and proceed by truck to Harrar, where the first field hospital will be established. Casualty clearing stations will be pushed out southeastward from there. The line of retreat will probably be due west from Harrar toward Addis Ababa, and the next situation for the field hospital is expected to be Asba Tafari in Chercher Province. Arrangements for the unit's transport into the fighting area over various routes, according to the season and condition of the roads, are already being made by an advance liaison officer.

ITEMS

THE greatest outburst of sun-spot activity since last summer is sweeping the sun, according to photographs obtained at the Naval Observatory. Above the sun's equator, on what would be the northern hemisphere of the earth, a giant streamer extends from 47 to 82 degrees of longitude, or over one sixth of the sun's diameter. The streamer's length is approximately 144,000 miles. Also in the northern latitudes of the sun is a sun-spot group moving, as is customary, from east to west. Coupled with the increased sun-spot activity has been a succession of moderately severe magnetic storms, according to reports from the U. S. Coast and Geodetic magnetic station at Cheltenham, Md. "These storms," reports W. M. McFarland, "seem to be a recurrence of the magnetic activity of late August and late July. There is often an interval of about 27 days between these recurrences, and sometimes such a group of magnetic disturbances will continue to occur for several years with this 27-day interval between the appearances. The present group of disturbances seems to have appeared first about two months ago."

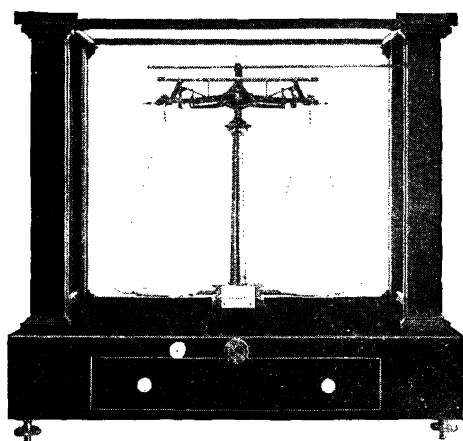
CORN is apparently winning its race with frost this fall. Through most of the corn belt the crop is already more than half over the safety line, and in certain areas, as in northern Iowa, 90 per cent. of the grain is sufficiently

mature to defy freezing weather. Warm, dry weather over the country generally for another week has helped toward the goal. In the South, cotton is showing good progress, and although picking is late it is now getting well under way. The dry weather has spread over the Southeast, where until this week persistent rains have hampered field work. While absence of rain has thus been helping the harvesting of late crops, it has imposed a handicap on fall plowing in some parts of the country, and has thus delayed the seeding of winter grains.

DEATH and disease are the worst enemies along the impending Italian-Ethiopian battle lines, according to reports on disease conditions in Addis Ababa as communicated in consular reports to the U. S. Public Health Service. Epidemics of typhus fever, relapsing fever and smallpox are harassing the Ethiopian capital and surrounding country, according to the latest report. The number of cases or even of deaths in these three epidemics is unknown, as no statistics on sickness, deaths or births are collected. Vaccination against smallpox is not practised. Leprosy is very common in Ethiopia. So are venereal diseases, and syphilis is reported to be more prevalent there than in any other country. It is said that 90 per cent. of the adult population is affected by some venereal disease. Malaria of course is always present. Tuberculosis, grippe, pneumonia, quinsy, asthma and dysentery are other diseases reported prevalent. Practically all the adults in the country have tape-worms.

AN extra-strong wooden ship, whose ultimate duty will be to become frozen in Arctic ice and drift with the ice fields into high latitudes, will be completed early in 1937, Professor Wiese, the Soviet explorer, has announced. In general the design of the ship will follow that of the *Fram* used for similar duty by the Nansen expedition to the Arctic in 1893-96. The chief object of the expedition which will use the new ship will be a thorough study of the deep parts of the Arctic basin which are covered the year round with an ice crust so thick that the strongest ice breakers can not pierce it.

FLOWERS of the most familiar modern plants have male and female parts—pollen-yielding and seed-forming organs—close together. Lilies, apple-blossoms and buttercups are common examples. But it was not so in the most primitive flowers, some tens of millions of years ago, according to Professor H. Hamshaw Thomas, of the University of Cambridge. These earliest flowering plants kept their sexes carefully segregated, as they still are in some modern species, such as pines and willows. Evidence from fossils and from the study of modern floral structures tends to indicate that the earliest flowers consisted of whorls of structures bearing the reproductive elements, each whorl tipping the end of a branch. Professor Thomas also offered the opinion that flowers are not all derived from one common ancestral type. The common assumption is that they are. If this view is accepted, it will require the very radical revision of many currently accepted ideas of botanical evolution and classification.



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