

HEMATOLOGY

Predicts Leukemia Control and Vaccine

► **CHEMICAL CONTROL** of leukemia and even possible vaccine for prophylaxis against the malignant blood disease were predicted by Dr. William Dameshek of Boston in his presidential address at the International Society of Hematology meeting in Boston.

He said there is now justification for predicting that leukemia will "not necessarily cured, but controlled" through chemicals because of the "amazing specificity" of some of the chemical treatments now available.

The possibility of a virus cause for at least some cases of leukemia and "therefore the possible development of methods of prophylaxis, as in poliomyelitis" is also, Dr. Dameshek said, an "optimistic portent."

For the anemic, he predicted development of methods for preserving and transfusing bone marrow and discovery of bone marrow stimulants.

Hemophiliacs, sufferers from the hereditary bleeders' disease, will "undoubtedly" in the future be aided by daily injections, like insulin for diabetics, of the clotting materials they lack, which will be concentrated and prepared for this use.

Hematologists must "ever work to prevent useless blood loss and to conserve this most vital fluid for an increasingly healthy society," he said.

By their international gatherings to work toward this end, they will also, he said, be taking steps toward world peace and toward "doing away with mankind's Number One disease—war."

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BIOLOGY

Laboratory Seen Source Of Future Food, Fibers

► **SCIENTISTS** have an unlimited opportunity to aid agriculture, industry and human health by more biological investigation, Dr. Byron T. Shaw, administrator of the U. S. Department of Agriculture's Agricultural Research Service, told the American Institute of Biological Sciences meeting at the University of Connecticut.

The "kinds and quantities of food and fibers" the American farmer will produce to feed and clothe an ever-increasing population will result largely from the work of research scientists in all fields of science, Dr. Shaw said.

He threw these research challenges of present-day agricultural science at the members of the various scientific bodies comprising the Institute:

1. To increase meat production by making better feed and forage crops. What is needed are forage hybrids to rival those of corn; disease-resistant plants and insect-resistant plants.

2. Plant disease strains that would at-

tack only weeds and not the crops the weeds rob of vital nutrients and water.

3. Laboratory-tailored diseases caused by bacteria, viruses, protozoa and fungi that would fight specific insects susceptible to these diseases.

4. Knowledge of perhaps the most important insect pests, those that inhabit the soil and soil-borne parasites. Almost nothing is known about these destructive organisms today.

5. The need to improve the production characteristics of beef cattle, the milk production of dairy cattle, and the production of beef that will have enough intramuscular fat to make tasty, high-quality cuts without waste fat.

6. The problem of milk composition itself and a cow that will produce milk with more non-fat solids without increasing the highly correlated fat content.

7. To increase the number of plant species that can fix their own nitrogen.

8. The conversion of agricultural by-products into industrial raw materials.

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GENERAL SCIENCE

Kettering, at 80, Looks Forward to Man's Future

► "WE ARE not at the end of our Progress, but at the beginning.

"We have but reached the shores of a great unexplored continent.

"We cannot turn back. There is no other direction to go but forward.

"It is man's destiny to ponder on the riddle of existence and, as a by-product of his wonderment, to create a new life on this earth."

These Ketisms typified the spirit of the celebration of the 80th birthday on Aug. 29 of Charles F. Kettering, American inventor and manufacturer. Some 1500 friends and associates honored him in Dayton, Ohio, and looked with him to the future.

Among the many achievements of "Boss Ket," as he is known by his associates in General Motors Corporation and elsewhere, are:

The electric cash register, automobile ignition and lighting systems, automobile electric self-starter, farm lighting system, organization of General Motors research laboratories, anti-knock tetraethyl lead, Freon refrigerant, and numerous other automotive research developments which were made under his direction.

He led the development of Diesel engines, high-octane fuels, and other achievements that play a major role in the U. S. war effort. Other research interests include inquiries into "why the grass is green" (chlorophyll and photosynthesis), fever therapy and cancer research.

Since its organization in 1940, Dr. Kettering has been chairman of the National Inventors Council, the Federal committee that screens inventions and suggestions for use of the government's defense agencies. The council held a meeting to honor him.

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IN SCIEN

BIOLOGY

Dwarf Corn Grows Normally When Treated

► **CORN** that has been dwarfed by a gene mutation will achieve normal growth when treated with extracts from the young seed of beans, peas, plums and other plants.

This was reported by Drs. Charles A. West and B. O. Phinney of the chemistry and botany departments of the University of California, Los Angeles, at the American Institute of Biological Sciences meeting at the University of Connecticut.

Certain strains of corn grow to a height of only two feet at maturity as a result of single gene mutations, the scientists pointed out. Treatment with the seed extract caused these dwarf mutants to grow normally, they said.

Dr. Phinney had previously reported similar results with a recently isolated plant hormone known as gibberellic acid. None of the previously known growth hormones, such as indole acetic acid, have any growth-regulating ability for these dwarfs.

The seed extract is thought to contain gibberellin-like substances, which may have an important role in controlling the growth of the plants. The investigators are working on the chemical isolation of these seed substances in pure form and on the identification of their chemical nature.

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PSYCHOLOGY

Shirts to Match Blue Mondays, Pink Fridays

► **BLUE MONDAYS** and pink Fridays are observed in a unique way by the staff of Du Pont's Technical Laboratory devoted largely to dyes in Deepwater, N. J.

On Mondays men employees wear blue shirts, the girls blue dresses, blouses or sweaters. Friday is designated as pink day and the staff wears pink.

Various colors are worn during the other days of the week. The only excuse for wearing a white shirt is a funeral or wedding. A sign prominently displayed in one of the offices states, "A white shirt is a lost sale."

This idea was developed about two years ago by Anso G. Bruinier Jr. of the Technical Laboratory. He decided that, since the work of the laboratory is closely associated with both the manufacture and sales of dyes, employees should do something to "promote color and sell color."

During the week of the Perkin Centennial from Sept. 10 to 15, Technical Laboratory employees will wear variations of this shade. (See p. 154.)

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CE FIELDS

HEMATOLOGY

Find Unsuspected Role For RES in Shock

► A HITHERTO UNSUSPECTED factor in keeping up blood circulation in shock has been discovered by Drs. B. W. Zweifach and L. Thomas of New York, who reported it to the International Society of Hematology meeting in Boston.

The unsuspected factor is the part played by the reticulo-endothelial system of the body, called RES for short. This system includes cells of the spleen, lymph glands, bone marrow and liver. The cells act as scavengers to rid the body of dyestuffs and other foreign matter, such as disease germs and their poisons.

When the phagocyte, or scavenger, activity of this system was blocked, rats and rabbits in shock from hemorrhage could not sustain the constriction of blood vessels that otherwise would occur to keep blood in vital areas of the body.

Bacterial poisons at concentrations that normally would cause no trouble produced dilation and damage of small blood vessels when the RES was put out of commission.

Of various substances said to stimulate the RES, albumin and zymosin showed a clearly protective effect, but choline and dextran were ineffective in protecting the animals against the damage when the RES was blocked in cases of shock from injury and hemorrhage.

The "obvious importance" of this newly discovered relation of the RES to the maintenance of blood volume in vital tissues presents "a challenge which must be met," Drs. Zweifach and Thomas reported.

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HEMATOLOGY

New Remedy for Anemic Babies

► GOOD RESULTS with a new iron medicine to build the blood of anemic babies were reported by Dr. Ralph O. Wallerstein of San Francisco at the meeting of the International Society of Hematology in Boston.

The medicine is an iron-dextran solution for injection into the muscles. A single course of two to four injections makes up the entire treatment. There is no pain or unpleasant reaction such as sometimes come with injections into the vein of iron preparations.

Dr. Wallerstein reported results with 25 infants aged two to 26 months of age. Some had nutritional anemia, others were premature babies. Hemoglobin rose promptly in all the babies after treatment with the new medicine. Regardless of pretreatment

levels, their hemoglobin reached about 75% in three weeks. The more severely anemic infants also showed good increases in young red blood cells.

Iron deficiency is a common cause of anemia in infants between six months and two years, Dr. Wallerstein pointed out. Severe iron deficit, once acquired, cannot be repaired by diet alone. Iron medicine must be given. Preparations to be taken by mouth, although effective, usually must be taken over a long period and are rather unpalatable to many babies who are poor eaters already.

The new iron-dextran combination, trade-named Imferon by Lakeside Laboratories, Milwaukee, Wis., is a "safe, effective and convenient" way to give iron to these babies, Dr. Wallerstein found.

Imferon has been used in England but will not be available to physicians in the United States until November.

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AGRICULTURE

Stop-Drop Sprays Cut Fruit Losses

► SPRAYS that keep fruit from dropping off trees are cutting pre-harvest losses of apples and pears from 20% to less than 6%, the U. S. Department of Agriculture has reported.

After using these stop-drop sprays, actually plant growth regulators, the fruit crop defies wind and shaking for ten days to four weeks.

Four chemicals are commonly used by fruit growers. They include NAA, the only spray that can be applied from airplanes, which lasts only ten days to two weeks; 2,4-D, which controls drop of Winesap and Stayman apples and Bartlett pears; 2,4,5-T, which can be used on all commercial apples; and 2,4,5TP, also successful on all commercial apples. All but NAA will hold fruit to trees three to four weeks after application.

Cost of spraying averages about \$4 an acre.

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GENERAL SCIENCE

AMA Conference Learns Of Science Fair Aid

► IMPORTANCE of supporting the National Science Fair and its 110 affiliated regional fairs as an incentive to future physicians and medical research was stressed at the American Medical Association's Public Relations Institute in Chicago.

Interest in science fairs is at an all-time high, the conference was told, with more than a million people witnessing 187,100 exhibits at local and regional fairs in all parts of the country.

The National Science Fair, to be held next May in Los Angeles, is an annual project of Science Clubs of America, administered by SCIENCE SERVICE.

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GENERAL SCIENCE

High Temperature Seen As Philosopher's Stone

► THE PHILOSOPHER'S STONE that the earliest chemists sought for transmuting the elements, such as making gold out of base metals, is being discovered, in a sense, through the modern development of very high temperatures, Prof. George Porter, Sheffield University physical chemist, told the British Association for the Advancement of Science meeting in Sheffield, England.

The high temperatures most exciting are those far beyond the highest more or less conventional flames, such as those of beryllium and oxygen burning, which reaches 4,500 degrees Centigrade.

Non-conventional methods can be used to create higher temperatures, among them use of a "shock tube." Another method is irradiating the gas being affected with an intense flash of light as bright as a million electric light bulbs. Both methods, Prof. Porter explained, heat the gas without having to heat the vessel holding them.

Although not specifically mentioned by Prof. Porter, these are methods suggested for starting and maintaining fusion of light elements in the possible harnessing of the H-bomb thermonuclear reaction for peaceful purposes, which is the present prime atomic goal. The hydrogen thermonuclear reaction attains a temperature of ten million degrees Centigrade.

At more ordinary high temperatures things happen at very high speed, Prof. Porter observed. Ethane fuel, which would require 30,000 years to attain a 50% reaction at even the high temperature of 300 degrees Centigrade, would react in a millionth of a second at 1,500 degrees Centigrade.

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DENTISTRY

Sees Promise for Screw-in False Teeth

► FALSE TEETH screwed to the jawbone may work when all other means of fitting a set of lower teeth fail, Dr. Sidney H. Bleicher of the Veterans Administration Hospital, Tuscaloosa, Ala., reports "cautiously" in the *Journal of the American Dental Association* (Sept.).

The screw-in false teeth, termed an implant denture by dentists, generally are in a detachable superstructure fitted to posts protruding through the gums from an underlying framework of metallic mesh. The framework is screwed to the jawbone.

"It is safe to assume that a method has been established whereby, in instances of extreme conditions when all other conservative means have failed, surgical implantation for full lower dentures may be attempted," Dr. Bleicher reports. "However, to think that surgical implantation is a panacea, or that it can be used universally at the present time, is a mistake."

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