

# SCIENCE AT GATEWAY OF LIFE AND DEATH.

Professor A. P. Hill, British physiologist, has brought science to "the very gateway of life and death" through his studies of the cause of organic life, delegates to the British Association for Advancement of Science, at Glasgow, Scotland, were told.

Warning his audience that the "mystery of life remains unsolved," despite the sensational discoveries made by Professor Hill, the speaker, Professor Frederick G. Donnan, of University College, London, opened his long awaited discussion in an atmosphere of suspense.

"Life is the greatest mystery and the greatest study of the world," he said. Then, basing his talk on Professor Hill's studies, he declared that "it is the non-equilibrium, the free or available energy of environment, which is the sole source of life activity."

"The facts of biology and physiology seem to show that living things, just like inanimate things, conform to the second law of thermodynamics. They cannot live and act in an environment which is in perfect physical and chemical equilibrium," he said.

Professor Donnan made the statement clear in simple terms by pointing out that the steam engine moves and works because the coal and oxygen which feeds it are not in equilibrium.

"In just the same way," he said, "an animal lives and acts because its food and oxygen are not in equilibrium. Equilibrium is death!"

Professor Donnan said Hill was "on the eve of a discovery of astounding importance, if indeed, he has not already made it."

"The life machine is totally different from our ordinary mechanical machines. Its structure and organization is not static and the cells are in reality like a battery which constantly is running down and requires constant oxidation to keep it charged," he continued. "Death is the natural irreversible breakdown of this structure always present but warded off by the structure preserving oxidation. I believe this discovery is of enormous importance and for the first time in history of science, we begin perhaps—as yet dimly—to understand the difference between life and death, and, therefore, the very meaning of life itself."

"The chief source of life activity on this earth arises from the fact that the cool surface of the earth is constantly bathed in a flood of high temperature light," he said. "All living things live and act by utilizing some form of non-equilibrium or free energy to a higher level."

"A living being is not a magical source of free energy or spontaneous action."

Professor Donnan reviewed the formation of the earth in opening his discussion.

"It probably has been a thousand million years," he said, "since the earth acquired a solid crust of rock. During that period the living beings—plants and animals—developed by degrees from small, lowly ancestors. The last product of this development is the mind of man."

"Man with all of his kith and kin, counts for but an infinitesimal fraction of the surface of the earth and yet it is the mind of man which penetrated the cosmos and studied the distant stars and Nebulae."

"Truly, we may say that life is the great mystery."

## Women Reach High Position in Espionage.

Forty-five thousand spies were employed by the nations involved in the World War, of which 20,000 were in the field for the Allies, according to Richard Wilmer Rowan in "Spy and Counter-Spy, The Development of Modern Espionage," published by the Viking Press.

An amazingly small percentage of this large number met death in the field or execution by trial. Rowan says adding that a maximum of 1000 were killed or executed during the four years of war.

"The cost of conducting an Intelligence Service is infinitesimal compared to the millions of dollars saved by successful espionage and counter-espionage work in war time," Rowan declares. Brigadier-General G. K. Cockerill, former Director of Special Intelligence at the British War Office, and his staff at the Great Britain alone a billion dollars by stopping enemy remittances, capturing cargoes, preventing destruction of war plants and other activities.

According to Rowan disarmament itself promotes espionage and service intrigues by no means have stopped with the cessation of hostilities. In a period of four months, ending March 1, 1928, seventeen persons were convicted of espionage in Great Britain, France, Sweden, Poland and Czechoslovakia.

Among the many brilliant achievements of espionage during the war, Rowan gives first credit to a woman; the famous German counter-spy, Mademoiselle le Docteur. He gives high rank to another woman spy, "Alice Dubois," of the French service.

One of the most arresting statements of espionage during the war, Hale "was completely a failure as a spy." In his discussion of spies of the past, he places Hale far below those whose names are hardly known, but who were far more successful in their operations.

## Gas Consumption in State Increases.

Consumption of natural gas in Pennsylvania during 1927 totaled 118,000,421 cubic feet, or four times more than the manufactured gas consumption of 30,484,736,000, although there were 250,000 fewer consumers of the natural product.

## FARM NOTES.

—To find the capacity of a grain bin in standard bushels, divide the number of cubic feet contained in the bin by 1.2445.

—The important thing in storing seed corn is to keep it in a dry but well ventilated place and to prevent freezing until it has dried out.

—Where corn, without soy beans in the hill, was huddled down with minerals as the sole supplement, the results have not been good.

—The silo insures the corn crop for it will save all that can be grown. It protects the farmer against loss from frost, drought, or hail.

—Strange as it may seem, most of our machines do not wear out; they either rust or rot out. This is an expensive item which we can stop.

—Sweet clover must be kept out of alfalfa seed-producing fields. Alfalfa growers who make seed production a regular practice should not produce sweet clover seed.

—The ordinary rotation of corn, oats, wheat and clover will go a long way in controlling corn smut since this disease does not attack the other crops in this rotation.

—Feed and protection aid in keeping turkeys fit. Vitamin A, supplied in yellow corn, cabbage, alfalfa, clover, and most greens, increases resistance to colds. Cod liver oil also is beneficial. Late hatched, immature, and thin birds should have shelter at night from the cold.

—When the lambs are weaned is the best time to drench members of the farm flock. A recent survey of the territory where drenching demonstrations have been conducted show that 60,000 sheep are being drenched this year in Pennsylvania. According to W. B. Connell, sheep and wool extension specialist of State College, drenching is one of the most important operations in the successful management of the farm flock. He says that sheep running on infested pastures should be drenched during the summer at intervals of not more than six weeks.

—Cows that go into winter quarters in a thin condition cannot be expected to do full duty at the milk pail. It will also cost more to bring them back into flesh than if they had received grain during the pasture season, says county agent, R. C. Blaney. Dairy cows that have not been getting grain this summer will do better if they are fed extra at this time. This is especially true of cows that do not freshen until winter or next spring. When cows become reduced in flesh it is practically impossible to bring them back into production. Supplementing short pasture with extra feed is profitable to the dairyman.

—Now is the time of the year to be planning new hog lots and getting them fenced for use next year. There will be no time when the spring rush of work comes on, and the spring crop should have good, clean ground to run next year. On many farms the same lots have been used so long for hogs that they are badly infected with parasitic diseases which get the man absolutely impossible to get the man mumm growth on hogs that continue to run over them. In some instances they are in such a bad state that the death loss is quite heavy, especially among the young pigs, and in some cases quite so among even the older hogs.

—Marquillo wheat, the new highly rust-resistant variety developed by the Minnesota agricultural station, will not be distributed before 1929. This announcement was made by the Minnesota station to correct an impression that has gone abroad in some quarters that the seed is already being distributed.

There was available for seed next year only 125 bushels of this new variety, and the experiment station staff believed that the best results would be obtained if the seed was reserved and again grown on the experiment station farms in 1928, in order to make sure of the preservation of the seed stock and of the production of a sufficient quality of genuine Marquillo wheat to insure wide distribution in the spring of 1929. There is in the State no genuine stock of this variety, recognized by experiment station officials, except that in possession of the experiment station.

The variety is the result of a cross, made at University farm, between Marquis, the standard bread wheat of the Northwest, and timothy, a durum wheat. It is highly rust-resistant and of good milling quality. The aim is to get it into the hands of careful farmers in 1929 to be increased for seed purposes so that the seed may be certified and given wide distribution.

—The farmer who struggles along with poor seed, poor ground and poor equipment is paying for good seed, fertilizer, and good equipment whether he owns them or not. He pays because he cannot compete on even ground with the progressive farmer who uses all the means at his command for increasing his yield and lowering his labor costs by using mechanical helpers. The price he pays is a smaller income and denial of the things an increased income would buy.

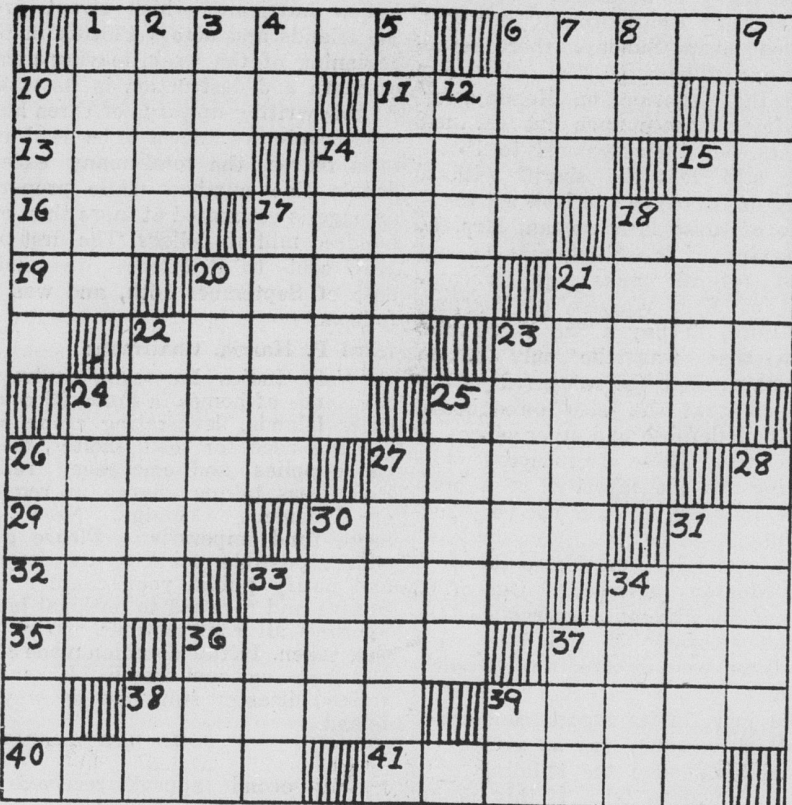
Better farm life is the goal of all who are engaged in or truly interested in agriculture. This goal has been reached by man, others are rapidly achieving it, while far too many think that the future holds nothing in store for them, and use the means within their grasp. Every one will agree that the progress in the development and use of agriculture has been due in large measure to the development and use of machinery. The very fact that man has become a director of power instead of a source of power has an uplifting effect on his nature.

A real desire for better living is the first essential in securing it. Having this desire, the next thing is to obtain an income large enough to provide it. It is here that proper equipment plays its part by reducing the cost of producing farm products and by increasing the amount that the individual worker produces.

## HOW TO SOLVE A CROSS-WORD PUZZLE

When the correct letters are placed in the white spaces, this puzzle will spell words both vertically and horizontally. The first letter in each word is indicated by a number, which refers to the definition listed below the puzzle. Thus No. 1 under the column headed "horizontal" defines a word which will fill the white spaces up to the first black square to the right, and a number under "vertical" defines a word which will fill the white squares to the next black one below. No letters go in the black spaces. All words used are dictionary words, except proper names. Abbreviations, slang, initials, technical terms and obsolete forms are indicated in the definitions.

### CROSS-WORD PUZZLE No. 1.



(© 1926, Western Newspaper Union.)

#### Horizontal.

- 1—Light wind
- 6—Heavy breezes
- 10—Tossed by wind
- 11—Tale
- 13—Established price
- 14—To frighten
- 15—Note of scale
- 16—Poem
- 17—Man-eating fish
- 18—In Spanish literature, a Seventeenth century champion of Christianity
- 19—You and I
- 20—Sobs
- 21—At liberty
- 22—Mammoth fish
- 23—To stab
- 24—Singer's rolling note
- 25—Hard center of fruit (pl.)
- 26—Grinding teeth together
- 27—Gold measure
- 29—Ceremony
- 30—To wed
- 31—This person
- 32—Consumed
- 33—Golf club carrier
- 34—Head covering
- 35—Personal pronoun
- 36—Foundations
- 37—To disclose
- 38—Humiliation
- 39—Rage
- 40—To avoid

#### Vertical.

- 1—Cutting part of a knife or sword
- 2—Mere routine
- 3—Young sheep
- 4—Half an em
- 5—To get away
- 6—Labor
- 7—Anger
- 8—Eastern state (abbr.)
- 9—Dug up with a shovel
- 10—Secondary color
- 12—Sailors
- 14—Outer covering, as of a nut
- 15—Mortgage
- 17—Fur-bearing marine animals
- 18—Table accessory to hold vinegar
- 20—Opposite of black
- 21—A raid
- 22—To inscribe
- 23—To be uneasy mentally
- 24—Hackneyed
- 25—Pasteboards
- 26—Unit of weight
- 27—Soldiers
- 28—Measures out
- 30—To crush
- 31—Market places
- 32—Barred enclosure
- 34—To hurt
- 37—To prohibit
- 38—Note of scale
- 39—Preposition
- 36—To invite

Solution will appear in next issue.

## OLD LAW AGAINST ROADSIDE PETTING.

Application of a "Parking Rule" established in 1871 by a court decision rendered in the Montgomery county courts of Pennsylvania, is being considered by the Pennsylvania Department of Highways. Although this opinion was given in the days of horses and carriage, rather than "horseless" arriages, it is believed the latter comes within its scope.

"The public possesses, in a public highway, the right to transit and of transit only. The use, by every citizen of public ways, must be a use appropriate to the purposes for which they are intended, that is of transit; with such stoppages as business necessity, accident, or ordinary exigencies of travel, either in vehicles or on foot, may require."

"I will illustrate: If one of you, for the purposes of a social visit place your carriage before a door where it remained in the way while you enjoyed your social intercourse within, this not being such a stoppage as is required by the necessities of business, accident or the exigencies of travel, such occupation of the highway by the carriage would be an obstruction of it, this is, would constitute a nuisance. If, however, you drove to a store and left your wagon in the highway before it, for the time necessary to unload the freight you purchased for the store, or to load the purchases you had there made, such occupation of the public highway growing out of the business necessities of the occasion, and continued only so long as was reasonably necessary would be lawful."

"It is upon this general principle that the infamous habit of corner speculation, when not prohibited by special local legislation is illegal. The loungers who occupy the public highway are, while loitering, not using it for the purpose of passage, and are therefore obstructions of the public right of way—that is, nuisances. These are the general principles of the law."

After quoting the foregoing from the charge of the trial judge to the jury, the Supreme Court commented as follows:

"The general charge of the learned judge was so lucid in its presentation of the law and facts to the jury in the case that it needs no discussion—and we affirm this case upon the charge, with a single qualification of a matter introduced by way of illustration, viz, that the carriage of a visitor to the house of a friend left standing on the street is a nuisance. It may become, but is not a nuisance per se, and this we presume is what the learned judge meant, but his language might be misconstrued."

## Tells How to Kill Hardy Tree Stumps.

"How can I prevent Carolina poplar stumps from sprouting?" is a question frequently asked the Pennsylvania department of forests and waters.

Experiments have proven that the following formula is effective: Arsenic, 1 lb., washing soda 1 lb., water 4 gallons. To prepare this solution, dissolve the soda in a convenient amount of water. Then add the arsenic previously made into a thin paste, with the remainder of the water. Bore several holes into the

## Solution of Last Week's Puzzle.

GUARD LOOTS  
R SUITE SILT  
OF BREAD NOON  
COT TAKES TEA  
EYES MELTS SI  
REPAY DARES L  
RIVET YAWLS  
P DEARS PEONS  
OF DRIED ROOT  
OUT STRIP PRO  
REIN EMEER EN  
LEAF OTTER E  
SPAIN STARS

stump, six to eight inches in depth, and pour the solution into the holes and around the base of the stump. This will invariably destroy the entire root growth.

Where it is desired to remove the entire stump when on a lawn or near a pavement so as to cause as little damage as possible, an effective method is to bore a hole in the center of the stump about 18 inches deep and 1-2 inches in diameter, in the fall. Pour in about 2 ounces of salt petre and fill the hole with water; then plug it up tight. In the spring take out the plug and pour in 8 to 10 ounces of petroleum, ignite, and the stump will smoulder, not blaze, to the extremity of the roots.

## State Specialist Pleads for Wide Vegetable Use.

Vegetable dinners once or twice a week offer a pleasant change from the usual meals with meat.

The State foods specialist at Rutgers University, New Brunswick, is suggesting for this purpose the selection of vegetables that have a contrast of texture, that harmonize in color, and that blend well in flavor. Buttered peas and carrots cooked together or separately, beets with sour sauce, scalloped potatoes, and cheese and cabbage salad with cherry pie for the older members of the family and cherry gelatine for the children are proposed as desirable for one dinner.

For another day the specialist recommends buttered string beans, cauliflower with cheese sauce, spinach, lettuce and tomato salad, and baked custard served with fresh fruit and crisp cookies.

According to the specialist, much of the dislike for vegetables is because of poor preparation. She says, "Steam as many vegetables as possible to prevent the loss of mineral elements. Cook vegetables in a small amount of water and only until tender. The longer the cooking is continued the greater the loss in flavor and in vitamins. Most vegetables retain more of their characteristic flavor if they are served with butter rather than white sauce, but for variety now and then a white sauce or cheese sauce may be enjoyed."

"Vegetables supply bulk and thereby satisfy the appetite without burdening the body with food rich in starch and fat which produce heat. Hot weather demands a generous use of vegetables and fruits in planning meals."

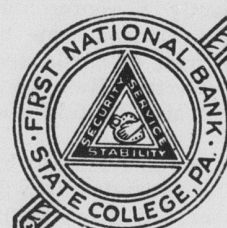
—Subscribe for the "Watchman."

## Making Your Will

IT is always better to consult a competent lawyer in the important business of disposing of your estate. And you will do well to name this Bank as your Executor, thus insuring prompt and competent settlement.

Drawing wills and settling estates is not work for Amateurs.

**The First National Bank**  
BELLEFONTE, PA.



## On the Highway to Success

YOU are on the highway to success when you have an account with this bank to which you are regularly adding. If you have not made your first deposit—start today.

3 per cent. Interest Paid on Savings Accounts

**THE FIRST NATIONAL BANK**  
STATE COLLEGE, PA.  
MEMBER FEDERAL RESERVE SYSTEM

## Nottingham Fabrics



## Troubadour Weaves

YOUNG men who appreciate fine materials will fall in love at first sight with "Nottingham, Troubadour Weaves!"

They're new! They're distinctive! They're colorful! Yet at the same time they are subdued in character, and refined in tone; the shadings are subtle; the design is modest.

And so are the prices! Let us show you.

**FAUBLE'S**