

ECOLOGY

Timberline Trees Show Effects of Snow Blasts

See Front Cover

SERENE autumn reigns in the lowlands, but high on the ranges in the West winter has already come. Snow has fallen among the trees of timberline, and soon their wrestling with winter storms in full fury will begin.

The distorted, one-sided, half-stripped appearance of trees near mountain timberlines is not due primarily to their being just pushed around by the prevailing winds. When hard-frozen snow lies on the ground, these gales sweep myriads of angular little ice pellets against them, like a sandblast. It is these innumerable teeth of ice that gnaw away leaves, twigs, even bark on the windward sides of the trees, and permit growth to proceed only down the wind. Cover photograph is from Denver, Colo.

Science News Letter, September 24, 1938

PHYSICS

Shells "Go to Sleep" During Swift Flight

ARTILLERY shells, screeching through the skies in Spain and China, "go to sleep" during their journey.

Probably most of the people at the receiving end of these death-dealers won't believe that, but it is true. In this skepticism they may be joined by those members of the A. E. F. who were actually under fire. But shells do "sleep" in flight, and without this sleep their range would neither be as great nor as true.

Sleeping in projectiles refers to the position in space which they take up because of the terrific spin produced by the rifling in the barrel of the gun. No one, of course, has ever seen a sleeping shell, but most everyone has seen a top go to sleep when it is spun rapidly.

When spinning rapidly a top will stay vertically upright if resting on a level surface. Only when the spin dies down does the top begin to wobble.

R. H. Kent, ordnance engineer at the Aberdeen Proving Ground of the U. S. Army, in Maryland, points out in the *Journal of The Franklin Institute* (July) that projectiles without sufficient spin will also go into a wobbling state just like a slow-spinning top.

The spin, produced by the rifling, Mr. Kent states, makes the nose of a projectile cock up as much as ten degrees, in some cases, as the shell leaves the gun. This yaw would produce wobbling if

the centrifugal force of spin did not overcome it and make the shell settle down to sleep.

"Fortunately, however," he adds, "just as a top goes to sleep about the vertical when spun on a table the projectile tends to go to sleep on its trajectory. If it did not go to sleep in this way, the range obtained from ordinary projectiles would be very appreciably reduced."

Science News Letter, September 24, 1938

SURGERY

Mending Bones Still One Of Surgeon's Chief Jobs

IN THESE days when so much is heard about gall bladder operations, surgical cures of cancer, gland grafting and plastic surgery, it is interesting to find that setting broken bones, one of the earliest jobs tackled by surgeons, is still one of their most important, numerically speaking.

Setting of fractured bones stands second in order of frequency, coming right after removal of tonsils, it appears from a statistical study by Selwyn D. Collins of the U. S. Public Health Service's National Institute of Health. Mr. Collins obtained his figures from a canvass of 8,758 white families living in 130 localities in 18 states of the union. The canvass covered a period of 12 consecutive months between 1928 and 1931.

For every 1,000 persons in this group, 65 surgical operations were performed in a single year. This means the total number of operations in this country each year totals close to 1,000,000. Of these, removal of tonsils constitutes nearly one-third. Setting of broken bones and other operations in connection with injuries take second place and third place respectively and together account for one-fifth of all operations. Operations on female organs of reproduction are fourth in order of frequency and removal of the appendix came fifth.

Slightly more operations are performed on women than men. Setting broken bones and other operations in connection with injury, hernia and sinus operations are more frequent in men. Appendectomy, gallbladder, cancer and thyroid operations are more frequent in women.

As might perhaps be expected, the frequency of operations increases with income. There is some difference, too, in types of operations according to income. You have to be up in the higher brackets, it appears, before removal of tumors and ear and mastoid operations are undertaken frequently.

Science News Letter, September 24, 1938

IN SCIENCE

ASTRONOMY

This Year Equinox Comes Exactly at Noon, E.S.T.

UNIQUE among equinoxes is this year's ushering in of autumn, on Friday, Sept. 23, at exactly 12:00 noon, E.S.T. (11:00 a. m. C.S.T.; 10:00 a. m. M.S.T.; 9:00 a. m. P.S.T.). The U. S. Naval Observatory states that it is a most exceptional occurrence.

The autumnal equinox marks the time when the sun's apparent southward migration through the sky brings it exactly over the equator. Day and night are then each just twelve hours long—the word equinox itself comes from a Latin phrase meaning "equal night."

Any stormy weather that may occur at this season should not be dubbed "the equinoctial storm," scientists agree. There are likely to be storms at any time in autumn, but they come and go without regard to the sun's astronomical position.

Science News Letter, September 24, 1938

ASTRONOMY

Leading Soviet Astronomers Reported Imprisoned

LEADING Soviet astronomers evidently have been "purge" victims.

The British science journal *Nature* (Aug. 27), reports that the Polish journal, *Acta Astronomica*, states that the following staff members of the Pulkovo Observatory have been imprisoned: I. A. Balanovsky, N. I. Dneprovsky, B. P. Gerasimovic (director), P. I. Iaschnoff, N. W. Zimmermann. B. W. Noumeroff, director of the Astronomical Institute at Leningrad, is believed to have been shot.

Gerasimovic was chairman of the commission of the Academy of Sciences of the U. S. S. R. in connection with the 1936 eclipse of the sun observed from Ak-Bulak and as such was host of the Harvard-Massachusetts Institute of Technology expedition there. Balanovsky led the expedition from Pulkovo Observatory to the same eclipse.

No Soviet astronomers were in attendance at the recent meeting of the International Astronomical Union at Stockholm, although delegates had attended previous meetings.

Science News Letter, September 24, 1938

E FIELDS

ANTHROPOLOGY

Future American Women Expected To be Taller

THE TYPICAL American woman of the next generation will be taller than the average American woman of today, but her height will probably not exceed 5 feet 4 inches. The increased heights of present generation college women over those of their mothers is the chief basis of this estimate by Metropolitan Life Insurance Company statisticians. The daughters have gained a little over one inch in height.

Life insurance figures have only recently begun to show any increase in average height of women in this country. The increase shown in these figures is among younger women and seems to be the result of several forces. Among them are the curtailment of immigration since the World War, improvement of conditions such as undernutrition and disease among descendants of later immigrants, and mingling of racial types due to intermarriage.

Science News Letter, September 24, 1938

PSYCHOLOGY

If You Are a Little Queer You Are Probably Normal

DOES your mind play tricks on you? Do you have strange fears or worries that have set you to wondering whether your mind was all right?

If so, you will be glad to know that many another person feels the same way.

In an article in *Hygeia* (September), Dr. Stephen Habbe, director of the WPA Adult Guidance Service of New Haven, Conn., tells how normal it is to have some little quirks of mind—some abnormality.

We take for granted the many little physical abnormalities that all must suffer. We think nothing of toothaches or colds, or being tall or thin, or wearing glasses.

Perhaps we worry about our mental peculiarities mainly because we can't see into our neighbors' minds. The physician who treats sick minds can tell you that such oddities are common.

The feeling of inferiority is called by Dr. Habbe a favorite mental torture. But

if some of our friends are better looking or can think faster than we can, it is also true that we are better in these respects than some of our other friends. And, fortunately, everybody tends to run with a crowd that is just about his own speed.

Mood swings are another experience shared by all. Dr. Habbe advises that you avoid making important decisions when you are either far up or down, and think of your problems with a long-time view.

People fear the oddest things. If you are afraid of snakes, or of canned goods, or grasshoppers, or bicycles, you are just one of a number of your fellow men. Many are unable to trace the origin of their fears.

Some fears, Dr. Habbe emphasizes, you would not want to be rid of if you could. Fears of taxicabs and unsteady ladders are very useful to those who would remain alive.

Many other normal abnormalities are listed for your reassurance by Dr. Habbe. They include: sleep disturbances, suicidal impulses, feeling of impending insanity and religious perplexities and even sex "perversions."

We are all a little queer.

Science News Letter, September 24, 1938

PSYCHOLOGY

Old Minds Rejuvenated By Sex Hormone

OLD MEN can be made young again, mentally as well as sexually, by means of hormone injection, Dr. Neal E. Miller, of the Institute of Human Relations, Yale University, told American Psychological Association.

Elation takes the place of depression in most of the patients, Dr. Miller observed in the course of an experiment in which the effect of injection of the hormone testosterone propionate was compared with results of a similar injection not containing the hormone. The group included, in addition to the cases of old men being rejuvenated, a number who were suffering from various types of glandular deficiency. Improvement was greatest when the deficiency had been greatest. Rational aggressiveness took the place of irrational irritability, for some patients. Nervousness and emotional instability were decreased. Muscle tonus, energy and stamina returned. Emotionally and sexually they were in better condition.

The psychological improvement did not take place after the dose not containing the hormone.

Science News Letter, September 24, 1938

PSYCHOLOGY

Salesman May Not Have Had Aggressiveness At Start

SELF-CONFIDENT, go-getter types of men do not always make the best salesmen, but many successful salesmen do develop an aggressive, self-reliant attitude as a result of their success, Dr. Arthur W. Kornhauser, of the University of Chicago, told Science Service in discussing modern methods of scientific personality judging.

The latest findings in this field were recently the subject of debate in a symposium of the American Association of Applied Psychologists, of which Dr. Kornhauser was chairman.

No simple objective test now exists which will tell an employer whether the man he is hiring is honest or industrious or a good salesman, psychologists in this field agree. Measurement of character must, at present, be conducted in a roundabout way by means of questionnaires and records of the man's job and personal history. Latest refinements of such indirect methods were discussed.

Psychologists may ask a man what he thinks of Federal aid for the unemployed, or the boycotting of goods from warring nations, or similar debatable current topics. The object is not really to find out the man's opinions, but how sure he is of his ideas—how positively he expresses himself. This is a clue to the man's self-confidence.

Some personality tests are successful even when the person knows he is being tested, provided too much does not depend upon passing the examination. Consequently they work better in selecting men for jobs where the pay is on a commission basis only rather than for salaried jobs.

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PHYSICS

Liquid Helium Film Only Quarter-Millionth Inch

HELIUM II, one form of liquid helium that is so fluid it behaves almost like a gas, forms about the thinnest liquid films that scientists have yet been able to produce. A. K. Kikoin and B. G. Lasarew, of the Ukrainian Physical-Technical Institute in Kharkov, report that they have produced films of the cold substance so thin that it would take a quarter of a million of them piled up to measure an inch in thickness. (*Nature*, Aug. 13)

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