MEDICINE

Rheumatism Can Be Cured By Early, Adequate Treatment

Arthritis Never Kills But Affects Fifteen Times As Many Over 40 as Does Tuberculosis; Is Costly

RHEUMATISM can be cured if patients are treated sufficiently early and thoroughly.

And rest and freedom from worry are the most important features in the regimen that American Public Health Association members in New York were urged to apply in order that this disease may be battled with effectiveness equal to that of the tuberculosis campaign.

A rest cure for the rheumatic in a specially equipped sanitarium was urged by Drs. Edward F. Hartung, William Von Stein and Margaret Straub Neil, of the New York Post Graduate Hospital and Graduate School. The rheumatism or arthritis patient needs this type of care just as much as the tuberculosis patient. Home and clinic treatment, all that is now available, is not so satisfactory.

In addition to rest and freedom from worry, these measures are recommended:

Exercise and massage, carefully adapted to each patient's needs; correction of posture defects, infected teeth, and digestive disorders; sunshine or ultra-violet light treatment.

Arthritis never kills, consequently it gets little attention from health workers, doctors and the public. But this disease always cripples unless treated in time. More than twice as many persons of all ages suffer from arthritis as from tuberculosis. After the age of 40 more than 15 times as many suffer from arthritis as from tuberculosis.

Arthritis or rheumatism causes more time lost from work than diabetes, cancer or hardening of the arteries. One case of rheumatism in a family may take more than half the family income to pay for treatment and in loss of income because of disability.

The deformities caused by rheumatism could be prevented if the patients got treatment after the bone changes occurred but before crippling set in. Even those already crippled can be helped to regain some use of their disabled hands or legs.

The treatment takes a long time, just as in tuberculosis. From six months to two years may be necessary. Unfortunately, the New York doctors pointed out, there are no such sanitoria where the rheumatism patients can get this treatment for nothing or at slight cost, as there are for tuberculosis patients.

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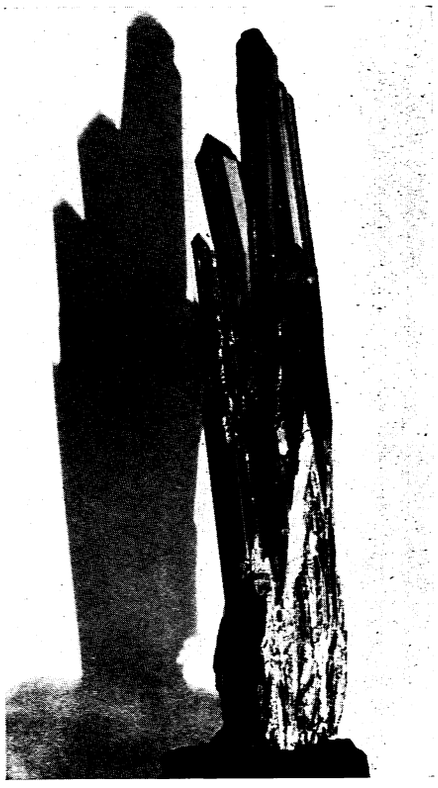

COLUMNAR CRYSTALS

Suggesting the lines of a modern skyscraper, this group of crystals of stibnite (antimony sulfide) from Ichinakawa, Japan, shows the great beauty of mineral crystals. Once prized as a cosmetic, and still used by Arabian women as eye-shadow, this mineral supplies the metal antimony, which is used in type-metal to control the shrinkage rate and insure sharp type. Metallic-appearing when first mined, these crystals become dull after exposure to light. This specimen is on exhibition at the Philadelphia Academy of Sciences. Stibnite is mined in Iyo province, Japan; Haut-Loire, France; Baia Sprie, Rumania, and Altar, Sonora, Mexico.

GENETICS

Artificial Fertilization Used On Gnat-Sized Insects

ARTIFICIAL fertilization methods have been successfully applied for the first time to tiny fruit-flies or Drosophila, insects no larger than gnats, by Dr. G. Gottschewski of the Kaiser-Wilhelm Institute for Biology, Berlin-Dahlem, at present working in the laboratories of the California Institute of Technology. Methods of this kind have been heretofore used to some extent with cattle, sheep, and other mammals; experimentally also with poultry; but the smallest animal hitherto artificially inseminated has been the queen honey bee —a creature gigantic in comparison with Drosophila.

The procedure involves a sort of little tragic triangle. To obtain the male fertilizing fluid, it is necessary to permit a normal mating to take place. Then the female is killed and the sperm is removed from her body with the more-than-hair-fine glass tube of a micro-manipulator. It is then introduced into the body of an unmated female. The whole process has to be carried out under a microscope, and thus far the percentage of successful transfers of sperm has been relatively low.

The significance of Dr. Gottschewski's experiments is entirely scientific, but the results may be very important in the field of genetics. Drosophila is classic material for the study of mendelian inheritance, especially since the discovery that hereditary units, or genes, can be rearranged by X-ray bombardment. Hitherto X-raying has had to be done on living animals, but through Dr. Gottschewski's technique it is now possible to apply the X-rays directly to the germ-plasm itself outside the body without involving any other tissues and thereby perhaps obtaining confused results.

The technique also makes possible

the production of hybrids between strains of insects physically unable to mate in the natural way. Such insects are frequently of interest from a genetical point of view, but since reproduction has never been possible the way has hitherto been barred to laboratory experiments.

Dr. Gottschewski describes his method and discusses its significance in the German science journal, *Die Naturwissenschaften.*

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ENGINEERING

Movies Have 3 Dimensions In Sound As Well As Sight

Stereophonic Film Viewed With Poloroid Glasses, Each Lens Polarized Differently, Gives New Depth

THREE-dimensions in both sight and sound are added to the movies by demonstrations before the Society of Motion Picture Engineers meeting in New York City.

The motion picture of the future thus promises to have the "depth" or perspective of real life with the sound localized as it is from a stage or actual scene.

The sound perspective or "stereophonic" movies were shown by J. P. Maxfield of Electrical Research Products, New York, while the three-dimensional movies produced by use of polarized light were demonstrated by G. W. Wheelwright of the Land-Wheelwright Laboratories, Boston.

By adding sight and sound perspective to the conventional color and faithful sound of today's theatrical movies, themselves hardly a decade old, the motion pictures of a few years in the future promise to reproduce all attributes of the senses of sight and sound. With such progress already made, it may not be too much to expect smell, taste and feeling to be portrayed by equipping future theaters with subtle perfumes, synthetic food pellets to be consumed at the proper time and auditoriums wired in some manner that would appeal to the spectators' sense of touch!

The sound perspective movies are a development of the three-dimensional sound system demonstrated a few years ago by Bell Telephone Laboratories before the National Academy of Sciences. It consists of two independent sound systems that feed two loud speakers so arranged that the sound from the screen is given direction and depth. On this new stereophonic film, two sound tracks are squeezed into the space on the film where one is usually placed. Theaters to use the new system would need to have two sound systems instead of one.

Actors gave a fast-moving skit and an orchestra played in Mr. Maxfield's demonstration to show the assembled engineers what sound perspective can do for future movie productions. A year or so in the future the public may be presented the first stereophonic dramatic production.

The movies that are three-dimensional in sight utilize polarized light to produce the effect. The audience wears glasses with lenses of Polaroid, a synthetic substance that cuts out all light except that which vibrates in one direction. One lens is blind to all the light that the other lens can see. In taking the Polaroid movies, two cameras are used with similar lenses, and the projector has a similar optical system. Two movies are flashed on the screen simultaneously, but each eye can see only one. The two movies are taken from distances apart similar to the spacing of the human eyes. The principle is that of the old, successful and simple stereoscope that a generation ago graced the parlor table. The actors and scenes appear as though in three dimensions.

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STONE AGE STRIFE IN SPAIN

There has been hard fighting in the hills of Spain before, if the above drawing, copied from the walls of a cavern in the western part of the peninsula, is a dependable record. Here, the little fellows seem to be getting all the better of the argument, and their bulkier opponents are interested only in making their escape.

ENGINEERING

Two-Way Electric Plow In Use in Soviet Russia

See Front Cover

THE large hydroelectric plan on the Dneiper River in Russia's Dnepropetrovsk province, makes it possible for them to use electric farm equipment like the two-way plow shown on the front cover of this week's SCIENCE NEWS LETTER.

No tractor is attached to the plow, which can reverse and travel in either direction. It is particularly useful on large areas of flat ground without rock like that on which the implement is pictured.

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