

ing the fall of 1933 of precipitation well below the normal for 1933 to 1934. This proved to be a very dry year not only in California but throughout the whole United States as well.

Science News Letter, June 8, 1935

Weather States "Match" In Widely Separated Regions

By H. H. CLAYTON, Editor, World Weather Records

WEATHER conditions in certain parts of the earth closely resemble conditions occurring simultaneously in far distant regions. These conditions may be alike or they may be opposite in character. For example, excesses of temperature in central North America are frequently coincident with excesses in central South America. An excess of rain in the central United States is frequently coincident with a deficiency of rain in Australia. An excess of pressure in central South America is usually coincident with a deficiency of pressure in India.

These coincident occurrences are generally accepted by meteorologists, but they are not so well agreed as to whether there are regular meteorological cycles. The reason of this difference of opinion is evidently due to the fact that meteorological cycles are much more complex than has been generally supposed.

The reason for this complexity, in my opinion, is due to the fact that opposing centers of oscillation in the atmosphere are subject to progressive motion; so that any particular region is first in one center of oscillation and later in an opposing center, and all traces of periodicity are lost in the opposing oscillations.

It is now becoming evident that the changes in position of these centers are brought about by changes in intensity of solar radiation. When these two facts are accepted, namely, the fact of moving centers of oscillation in the atmosphere and the influence on them of changes in solar radiation, I believe the study of weather cycles will make rapid progress.

In my opinion the great drought in the region between the Mississippi and the Rocky Mountains was closely connected with solar changes. In order to understand it, not only the sunspot changes, but longer and shorter changes of solar activity will need to be taken into account.

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In total bulk, the biggest whales are bigger than any dinosaur that ever lived.

MEDICINE

Artificial Fever With X-Ray Destroys Animal Cancers

FEVER treatment combined with small repeated X-ray doses give better results in treatment of a certain type of cancer in rabbits than either method alone, Dr. Stafford L. Warren with John J. Jares, and Otto Sahler of Strong Memorial Hospital, Rochester, N. Y., have found in preliminary tests of this method of attack on cancer.

This study was announced in the report of the International Cancer Research Foundation of Philadelphia which is supporting Dr. Warren's research.

Application of Dr. Warren's work to human cancers is far in the future, if it proves possible. So far he has worked with only one type of cancer and only on small numbers of animals.

Three years ago, working with funds from the Rockefeller Foundation, Dr. Warren found that high fever temperatures would kill cancer cells outside the body within a definite period of time. He found the high temperature also destroys cancer cells in the body, but only in one-fifth of the cases. Small repeated doses of X-rays, called fractional doses, destroyed the cancers in nearly half (42 per cent.) of the cases. When the fever treatment was combined with the fractional doses of X-rays, the percentage of apparent cures was doubled (84 per cent. of the cases).

Other research reports announced by the International Cancer Research Foundation include:

For the first time human cancers can be kept alive and growing for long periods of time outside the body. Dr. George O. Gey of the Johns Hopkins Medical School reported this new method which should aid greatly efforts to find better ways of destroying cancers. The mystery of why cells become malignant may be nearer solution.

The preparation of another cancer-producing substance from coal tar by Prof. J. W. Cook and associates at the London Free Cancer Hospital. Prof. Cook's latest discovery shows the importance of a certain kind of chemical architecture in cancer-producing substances from coal tar. A combination of carbon and hydrogen known to chemists as the methyl group—the same methyl group that is in deadly methyl alcohol or wood alcohol—occurs twice in the new cancer-

producing compound. Apparently more important than the methyl group itself, in connection with the cancer-causing property of the new substance, is the place where it is attached to the substructure of the new substance as its molecule is built up. Even a single methyl group at "position 5" causes marked cancer-producing activity.

Calories also have an important relation to cancer. Studies on this phase of the problem have been made by Dr. Fritz Bischoff and co-workers of the Santa Barbara, Calif., Cottage Hospital. Growth of cancers in mice is notably affected by reducing by one-half the amount of calories in the diet of the mice, the California scientists found. Weight loss in itself is not a clear indication of the nutritional state, they found, as other factors enter in. Consequently they point out to fellow scientists the importance of determining caloric intake.

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MEDICINE

Lack of Publicity Blamed For Thriving of Quacks

LACK of publicity in the medical profession was blamed for the thriving of so-called health lecturers and psychological and medical quacks by Dr. Charles A. Rymer of Denver, Colo., speaking to the American Psychiatric Association.

The misinformation spread by these quacks, especially in the field of sex, may cause untold damage to the persons who are already unstable mentally and emotionally and to those who try to obtain free medical information in order to treat themselves, he said.

It is the public's growing and widespread interest in science that makes possible the success of these quacks, Dr. Rymer pointed out.

"People are impressed with the advances which have been gained through the scientific approach, but since they lack the proper prospective and background to determine what constitutes science, they attribute almost magical properties to anything labeled 'scientific,'" he said.

"What substitute has the profession to offer?" he demanded of his fellow physicians.

"We criticize the quack for his methods; yet the medical profession is to blame to a certain extent for his existence. People believe the falsehoods of the quack because there are few means other than that of direct consultation with the doctor to counteract these beliefs."

Each county medical society should accept the challenge of the quack by offering correct instruction about health, he recommended. He also urged that

each city establish a board of physicians to examine the credentials of any lecturer claiming the ability to heal disease irrespective of its nature.

"Government has long recognized as a necessary safeguard to the public the importance of licensing individuals in many trades and professions," Dr. Rymer said, "we see no reason why the quack should be allowed to practice without restriction."

Science News Letter, June 8, 1935

PSYCHOLOGY

Poets Reveal Their Thought Processes to Psychologist

THE INNER workings of the minds of poets as they compose their verse were revealed to psychologists by Miss Catharine Patrick of New York City, in a report to the New York branch of the American Psychological Association.

Padraic Colum, Edward Davison, Eunice Tietjens, Vivian Larramore, the poet laureate of Florida and many other prominent poets, numbering fifty-five in all, were interviewed by Miss Patrick and asked to compose a poem while she recorded their methods of work. These made-to-order poems did not suffer in literary merit, but followed the characteristic style of the authors and were well liked by judges who later read them. Some have since been published.

The poets, and a group of non-poets who were watched at work in the same way, go through four stages of creative thought in the attempt to compose a poem, Miss Patrick found.

First is what she calls the stage of preparation. An example of this stage is when the poet gazes at a landscape and receives different impressions from it.

Next comes the stage of incubation. A

poem may "incubate" for only a few minutes or for several years. During this time, a certain mood or idea will involuntarily be thrust upon the poet's mind while he is also thinking of other matters. This process of incubation is said by some to be due to the workings of the subconscious mind.

Illumination, the third stage, comes when the mood or idea which has been incubating becomes definitely related to a specific goal. It is then that the poem is actually put into words. Sometimes this stage is accompanied by emotion, although at others the poet may have no special feelings at the achievement of his goal. A part of the poem seems to come automatically and spontaneously by itself, Miss Patrick observed.

The final stage, of verification or revision, comes when the poet checks his work with standards of art, elaborates his idea, and changes a word or line here and there to perfect the work. In lyric poetry, the revision is not very great, it was found.

The mental working of the group of poets was like that of the non-poets in

many respects. All went through the same four stages of thought. The poets composed no more quickly and no more slowly than the non-poets. Practically no differences in vocabulary were observed, although the poets showed a slight tendency to use more rare words.

The poets put more imagination and thought into their poems than did those who were not poets. The non-poets, when shown a picture and asked to write a poem, would write about the picture; the poets were more likely to write about some other topic. When they did write about the picture, the poets would select the details, while the non-poets would choose the more obvious features.

The poets are more influenced by the conventions of modern poetry, and the literary merit of their productions was judged to be higher than that of the non-poets.

Science News Letter, June 8, 1935

AVIATION

Steel in Burial Vaults Leads to Safer Flying

BECAUSE steel is being used for the construction of burial vaults in cemeteries aircraft navigation has been greatly improved.

The strange story linking two seemingly unrelated happenings of life was described by Prof. Philip Kissam, of the Princeton University School of Engineering.

To correct compasses for the shift in magnetic north, the Coast and Geodetic Survey has markers in various localities as points of reference for magnetic observations. These markers must be undisturbed and sufficiently distant from all steel structures that might affect the magnetic field. For a long time cemeteries have provided very suitable sites.

With the introduction of steel in burial vaults, however, cemeteries no longer were useful, and it occurred to Prof. Kissam that airports would be the place.

At the same time came the idea of using the markers to correct airplane compasses, and the subsequent development of the "Compass Rose," so-called because of its resemblance to a flower.

The "Compass Rose" has as its central point the Coast and Geodetic Survey marker. This is encircled by 12 other markers spaced 30 degrees apart and at a distance of 50 feet from the center. An airplane can thus formulate a table of corrections for its compass by lining up with the central marker and each of the others in turn.

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