

The absorbent has been particularly useful for the stainless steel industry where any trace of moisture during annealing produces a bluish cast on the metal instead of the bright polish. Another important use is in the manufacture of toxic gases used in household refrigerators which cause corrosion if they contain moisture.

The use of activated alumina to decrease the humidity in the home for better summer comfort has only been partially explored as yet, said Mr. Derr. Mainly this has been because its uses have been developed first for drying equipment in existing or less competitive lines of development. Further, the absorption of moisture by the alumina generates a considerable amount of heat which must be removed; a technical problem somewhat difficult to solve in a home installation.

Science News Letter, January 8, 1938

MEDICINE

Alcohol, Ether, Exposure Lower Pneumonia Resistance

THE REASON why pneumonia is especially likely to follow exposure to cold, ether anesthesia and alcoholic indulgence or over-indulgence is explained in research reported by Drs. W. J. Nungester and Roy G. Klepser of the University of Michigan's Hygienic Laboratory at the meeting of the Society of American Bacteriologists.

These conditions interfere with the normal action of the epiglottis and the vocal folds in the throat, structures which ordinarily act like curtains, closing over the trachea at the slightest irritation. Since the trachea or windpipe is the passage from the throat to the lungs, it is obvious that failure of these protective curtains would leave the passage to the bronchi and lungs open to pneumonia germs in the air.

The Michigan scientists found that the protective mechanism in the throat failed three times as often in rats that had been exposed to cold as in rats under normal conditions, and more than twice as often in intoxicated rats as in normal ones.

When pneumonia germs were put into the rats' noses, nearly half the rats that had been exposed to cold got pneumonia but only just over a tenth of the rats living in normal temperatures developed the disease. Over a third of the intoxicated rats and over a third of the rats under ether anesthesia developed pneumonia.

Science News Letter, January 8, 1938

PSYCHOLOGY

Psychologists Puzzled Over Adaptability of Workers

Brain Waves Throw New Light on Sleep; Intelligence Influenced by Good Home; Social Life of Mice Watched

ABILITY of workers to adjust to difficult working conditions and increased demands with an economy that no man-made mechanical device can imitate, is a puzzle to psychologists, Dr. A. T. Poffenberger, of Columbia University, told the meeting of the American Association for the Advancement of Science in his address as vice-president of the section on psychology.

When men have to work in excessive noise or in a room extremely hot or filled with distractions, the output of work may not be decreased, experiments have demonstrated. It is likely to continue at the same level. In fact, in an unconscious attempt to maintain the level despite handicaps, the workers are inclined to overshoot the mark and do even better than usual.

Does work done in noisy surroundings or in excessive heat and humidity take its toll of human energy? Do incentives of all sorts commonly employed to increase effort and thereby to increase efficiency really increase efficiency, or are they more costly when efficiency is properly computed?

These are questions that psychologists recognize but are not yet ready to answer, Dr. Poffenberger indicated.

Each person recognizes his own level, Dr. Poffenberger said. "One thinks of himself as just so good." He also has an aspiration level that represents the achievements he would like to reach. These levels are constantly adjusted in the light of experience.

When difficulties are encountered or the task is unexpectedly made harder, the individual automatically makes an adjustment necessary to keep to his own level of performance and avoid disappointment. After a period of adjustment the output is normal and the effort apparently not increased.

The persons who make this adjustment report that they "are not bothered" or "paid no attention" to the distracting conditions.

Dr. Poffenberger cited two possible explanations. First, the sense organs and musculature may act as a protective

mechanism against distraction and by automatically relaxing they transmit the otherwise disturbing conditions at a reduced level, one too low for competition with the important ones. Second, the hammering at other sense organs may really increase or reinforce the intensity of signals carried by the senses actually employed at the task.

Men And Mice Alike

The rhetorical query, "Are we men or are we mice?" loses most of its significance through studies reported to the American Association by Dr. Jacob Uhrich, of the University of Chicago and Kansas State Teachers College. Dr. Uhrich has found that men and mice are very much alike in some phases of their social conduct.

Male mice fight a good deal, females don't. There is some bickering between the sexes. The severity of the fighting differs from group to group, and within the same group at different times.

There is a tendency for one "boss mouse" to establish dominance over the other males. His rule may last for several months, or he may be overthrown after only a few days.

Brain Waves Chart Sleep

Persons who claim they go to sleep the instant their heads touch the pillows must be wrong, it appears from brain-wave studies of sleep reported by Drs. Hallowell Davis, P. A. Davis, A. L. Loomis, E. N. Harvey and G. Hobart of Harvard Medical School, Princeton University, and the Loomis Laboratory.

Brain-wave studies made of individuals as they went to sleep and the reports of the sleepers themselves indicated that sleep does not come all at once. Different parts of the brain go to sleep in stages, one at a time, and there is a "floating" or drowsy stage before real sleep which shows up in brain-wave records as well as in the reports of the sleepers. This drowsy stage, incidentally, gives a brain-wave record so much like those found in abnormal mental states that the investigators warned that it must be avoided in using brain-wave

● RADIO

January 13, 4:00 p. m., E.S.T.
SAVING MINDS WITH INSULIN—Dr. Z.
M. Lebensohn, St. Elizabeth's Hospital.

January 20, 4:00 p. m., E.S.T.
HOW SAFE ARE YOUNG DRIVERS?—Dr.
Harry M. Johnson, Highway Research
Board.

In the Science Service series of radio dis-
cussions led by Watson Davis, Director,
over the Columbia Broadcasting System.

records for tests of patients. False diagnosis, it appears, might otherwise be made.

Dreams, apparently, come in more than one stage of sleep. The investigators found that in some cases the sleepers reported dreams when the brain-wave records showed neither alpha waves nor large delta waves. In other cases dreams occurred during the deeper stage of sleep when both delta waves and the 14-per-second waves were recorded.

Adoption Helps I. Q.

Children adopted into good homes as very young infants are likely to grow up with superior intelligence regardless of the intellectual and social deficiencies of their own mothers.

Babies coming from very poor homes and with own mothers of low intelligence levels were tested at the Iowa Child Welfare Research Station from one to five years after entering good foster homes. Prof. Harold M. Skeels reported the results to the American Association for the Advancement of Science.

No child scored below normal. More than half (65 per cent.) are of superior intelligence. No relation was found between the intelligence of the children and their true mothers.

Science News Letter, January 8, 1938

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PHYSICS

New Gas Is Discovered High In Atmosphere of the Earth

Nitrogen Pentoxide, With Two Atoms of Nitrogen to Five of Oxygen, Is Probably Rarest of Gases in Air

A NEW and hitherto unknown atmospheric gas, a combination of oxygen and nitrogen, exists 10 to 25 miles above the earth's surface, Drs. Arthur Adel and C. O. Lampland of the Lowell Observatory, Flagstaff, Ariz., announced to the American Association for the Advancement of Science at the Indianapolis meeting.

It is nitrogen pentoxide, its molecule consisting of two atoms of nitrogen and five of oxygen. It is probably the rarest of gases of the air, present only in the outer regions where the ultraviolet rays of the sunlight bring oxygen and nitrogen into combination.

Existence of the new gas in the ozone layer of the atmosphere was demonstrated by delicate spectroscopy of the far infra-red region of the spectrum. If the new gas existed nearer to earth in the air around us, it would not be detectable by the most refined chemical and physical methods. Because the nitrogen pentoxide takes out certain portions of the sunlight as it comes through the atmosphere to earth, its existence could be detected.

The situation of Lowell Observatory high on a mountain in a dry atmosphere contributed to the discovery.

Science News Letter, January 8, 1938

PHYSICS

Existence of All Matter Rests on Intra-Atomic Force

THE EXISTENCE of all matter in the world is possible only because there exists an attractive force within atoms that acts only through a distance of less than a million-millionth of an inch. This estimate of the "radius of action" of this fundamental force of nature was presented by Prof. Gregory Breit of the University of Wisconsin in an address before the American Physical Society at Indianapolis.

Prof. Breit—who has been a leading analyst of the theoretical and mathematical implications of this basic force binding atomic particles into the nuclei of atoms, and hence makes possible all matter—reviewed the present knowledge of nuclear structure.

He reported on new measurements at the University of Wisconsin which give additional check on the small magnitude of the distance through which acts the binding force within atoms.

Quantitative experiments by Prof. R. G. Herb and his colleagues with the high-voltage, pressure-tank electrostatic accelerator at Madison have extended

studies of atomic particles (protons scattered by protons) to energy ranges of 2,400,000 volts, said Prof. Breit.

These measurements extend to a new range of energy, the pioneering work of Drs. M. A. Tuve and N. P. Heydenburg and L. R. Hafsted of the Carnegie Institution of Washington on such proton-proton scattering.

The much higher voltage of acceleration employed by Dr. Herb's research

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