

ENGINEERING

Noisy Audience Limits Sound-Proofing of Theater

THE CHATTER and commotion of a theater audience itself sets the limit to which modern engineering can sound-proof a building, it was pointed out in a paper presented before the Society of Motion Picture Engineers by S. K. Wolf and J. E. Tweeddale of Electrical Research Products, Inc.

"It is possible to treat other noise sources, but the audience is a source over whose output our control is meager," they stated.

From a series of observations in theaters Mr. Wolf and Mr. Tweeddale found that the noise level of an ordinarily quiet auditorium is from 25 to 30 decibels above audibility while street noise outside, at least that of average New York city traffic, creates a noise of from 60 to 70 decibels.

By properly insulating walls, doors and windows, the street noise that enters can easily be reduced to less than that caused by the audience. Ventilating systems, projection apparatus and other theater services can also be made less noisy than the people themselves, it was pointed out.

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ANIMAL PSYCHOLOGY

Fish Swim Tail First In Illusory Current

FISH ordinarily head upstream, as every angler knows, but when placed in an artificial environment which provides the illusion of running water they can be made to behave quite differently. This fact was learned by Ralph G. Clausen, of Union College at Schenectady, N. Y., who built a special little aquarium and experimented with natives of the lakes and streams of Saratoga county, New York.

On the bottom and sides of the glass aquarium Mr. Clausen placed a white-and-black striped cloth, movable either forward or backward. The fish used in the tests were selected from various fresh water habitats. All were young specimens.

The black-nosed dace, which is accustomed to a strong current, turned about quickly and headed in the direction of the moving cloth. The common shiner, taken from wide streams where the current is moderately swift, followed closely the slow movement of the cloth and could be made to swim tail first the en-

tire length of the aquarium. When the sides and bottom were speeded up, however, it took the opposite position and swam against the "current."

Regardless of the movement of the cloth, the darter fish looked on disinterestedly, refusing to move. The home of this fish is at the bottom of quiet pools. The common sucker behaved like the black-nosed dace, but moved less quickly. Mr. Clausen explained this by the fact that the sucker is used to a slower current than the dace.

The reactions of the killifish were generally slow and hesitant, while the sunfish moved only enough to get its head in the direction of the current.

Mr. Clausen accounts for the behavior of the fish as due mainly to the stimulation of the sense of sight. As lake fish were found to respond more slowly than stream fish, he concluded that there is a proportionate relationship between the speed of the fish's reaction to the optical stimulus and the speed of the water which the fish is used to in its natural home.

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ARCHAEOLOGY

Hidden Pyramid Found In "Castle" at Chichen Itza

A TUNNEL sunk into the side of El Castillo, chief of the temple-topped pyramids of the ancient Maya city, Chichen Itza, has revealed an older pyramid within. A large stone tiger was discovered near an old interior wall.

The habit the ancient Indians of Mexico had of enlarging an old sub-structure for a temple by heaping it over with earth and rock, has forced a new technique on Mexican archaeologists the past few years. In order to show the inner structures, and not disturb the outer covering, they make tunnels by which visitors can view the works of different epochs in the past.

The Castillo of Chichen Itza is a pyramid almost 100 feet high. A beautiful limestone temple to the feathered snake god Kukulcan stands on top. It is called the Castillo, or castle, because in the Spanish conquest of the Mayas, the white men used it as a fort.

The Mexican government has now restored the temple, and two of the panelled sides of the supporting pyramid. Through the other two sides, left in their ruined state, Mexican archaeologists have sunk the tunnels that reveal the inner structure of the pile.

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IN SCIENCE

MEDICINE

Vitamin A Found Helpful In Child Ear Infections

INDICATIONS that vitamin A is helpful in preventing and treating ear infections of children appeared in a study reported by Dr. Claude C. Cody of Houston, Texas, to the meeting of the American Medical Association.

Dr. Cody found that the addition of cod liver oil to the diet of many infants and children during the past few years has been accompanied by a decided decrease in the number of cases of acute abscesses of the middle ear. It cannot yet be definitely said that the cod liver oil has brought about this result, but the evidence is strong enough to warrant continuing its use, in Dr. Cody's opinion.

In treating the disease, a nutritious diet is second in importance only to draining the abscess, Dr. Cody said. He found in a large series of cases that adding large amounts of vitamin A to the diet reduced the period of discharge, made repeated incisions less frequent, complications of the mastoid bone less frequent and the return of hearing more prompt.

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PHYSIOLOGY

Liver Symptoms May Look Like Pituitary Disorder

WARNING against being misled by symptoms of pituitary gland disorder which might instead be caused by a "bum liver" was issued by Dr. Allen Winter Rowe of Boston at the meeting of the Association for the Study of Internal Secretions.

Dr. Rowe reported that in a surprisingly large number of cases of thyroid gland disease there is an accompanying liver disorder. While either of these conditions alone could be readily recognized, the two together are often mistaken for disease of the pituitary and treated with extract of that gland. Instead, the liver must be treated first, and then the thyroid gland, Dr. Rowe advised.

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E FIELDS

PHYSIOLOGY

Excess of Hormone Held Cause of Ovarian Cyst

DISCOVERY of the cause of cysts of the female sex glands, a distressing condition frequently occurring in women past middle age, was reported by Drs. John Burch, J. Wolfe and R. S. Cunningham of Nashville, to the meeting of the Association for the Study of Internal Secretions. These investigators were able to produce in mice a condition resembling that found in human patients by a process which caused secretion of too much of one female sex hormone in proportion to another. This relative excess of the one hormone they consider the cause of the cysts.

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ENGINEERING

Home Talkie Sets Almost Ready for Open Market

SOUND motion pictures for the home, classroom and small audiences generally have been practically realized and can be expected on the open market soon.

This is indicated by the demonstration of three systems of "talkie" projection, using the small-sized 16-millimeter film that has become standard for home projection of silent motion pictures, before the meeting in Washington of the Society of Motion Picture Engineers.

One of the systems uses phonograph records synchronized with the film; the other two have the sound record incorporated in the film itself as light-and-dark bands, through which a pencil of light is passed to play upon a photoelectric cell and translate light fluctuations into sound waves. One of these two systems has revived the selenium cell, pioneer photoelectric device, but improved now to such a point that its performance seems to be superior to the larger and more elaborate cells of the potassium and caesium type.

All three types of narrow-film "talkie" can be made by copying from the larger films used in regular motion

picture houses; though there is a considerable difference in cost between them, due to their differences in method of transferring the sound record. The demonstrations showed, however, that the sound could be successfully transferred from the large films to the little ones: one of the exhibitors had samples ranging all the way from Mickey Mouse to a Martinelli solo.

A "five-in-one" home movie cabinet, indicating the type of machine that may eventually be expected on the market, was on display. It can be used as radio set, phonograph, projector for silent film, projector for film-with-phonograph-record, and projector for film-with-sound-track.

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MEDICINE

Isolation of Drug Addicts Recommended by Doctors

BEST RESULTS in the fight against drug addiction will come from considering it a plague or epidemic like yellow fever, and fighting it on medical and psychiatric grounds, it appeared from the discussion of narcotic drugs by Dr. Paul Wolf of Berlin, editor of a leading German medical journal, and Dr. Walter Treadway, of the mental hygiene division of the U. S. Public Health Service, at the American Medical Association. Drug addicts should be isolated much as if they had a contagious disease, because contact with other addicts is a leading factor in causing new cases of addiction. Such segregation and treatment as mentally and physically sick patients has been given legislative sanction in the United States by the establishment of the Federal narcotic farms for treatment of addicts who have committed offenses against the United States and for those who may seek voluntary treatment.

Production of satisfactory substitutes for habit-forming narcotic drugs was discussed as the eventual solution of the problem by both speakers. Work along this line is being conducted at the University of Virginia and the University of Michigan in this country. Restrictions which reduced by about one-half the amount of cocaine used annually in Germany were described by Dr. Wolf. He was not so hopeful about the chance for reduction of the amount of opiates. Observing that too much opium is being grown, he raised the question of what the poppy growers can grow instead to make a living.

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MEDICINE

Malaria Treatment Cures One-Fourth of Paralytics

A QUARTER of the sufferers from the general paralysis type of insanity when treated with malaria have been practically cured and restored to former occupations, the U. S. Public Health Service has announced in giving details of a new program of study of the treatment.

Over ten thousand cases have been reported in the medical literature since 1917 when Prof. von Jauregg of Vienna began to treat that advanced stage of syphilitic infection, known as paresis or general paralysis, with artificially inoculated malarial fever. A study of these reports shows that about 25 per cent of patients have been practically cured. Before the malaria treatment only one or two per cent. of the victims had complete remissions and patients died within three or four years.

The U. S. Public Health Service is cooperating with the State Hospital at Columbia, S. C., in its new investigation. The malarial parasites rapidly die if blood in which they are located is removed from the human body. The growth of the fever-producing organisms in cultures will be studied.

The curative fever can be transmitted by the bite of an infected Anopheles mosquito and the Public Health Service scientists will study the transportation of mosquitoes and their part in this new method of restoring sanity.

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PHYSIOLOGY

Early Treatment for Excessive Weight Advised

THE PROPER time to treat excessive weight is in the early stages, when the patient is just beginning to put on weight, Dr. E. Kost Shelton of Santa Barbara, Calif., declared before the meeting of the Association for the Study of Internal Secretions. He reported favorable results with the new Willoughby method of determining a person's ideal weight. Measurements of girth at shoulder, hip and thigh levels and around wrists, knees and ankles are taken and the ideal weight computed from these. This takes into account the size of the bones, and is adapted to all persons of the white race regardless of age or body build, he said.

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