

## PHYSICS

# Atomic Reactor in Norway

Second atomic reactor known to be constructed outside of English-speaking nations and possibly Russia is sponsored by Norwegian and Dutch governments.

➤ AN ATOMIC energy reactor, the second known to be constructed outside of English-speaking nations and possibly Russia, is being sponsored by the Norwegian and Dutch governments at Kjeller, near Oslo, Norway. It has operated for about two months.

This was made known in New York to the Twelfth International Congress of Pure and Applied Chemistry by Drs. Gunnar Randers and Odd Dahl of the Institute of Atomic Energy, at Kjeller.

Using 2.8 tons of uranium metal in 6.5 tons of heavy water, the atomic pile will produce up to 100 kilowatts of energy. Intended for research purposes only, this low power reactor is expected to be used by visiting scientists who will live in special apartments provided.

Heavy water is the moderating or controlling substance used because it can be produced in Norway through use of hydro-

electric power which is used to convert water into its hydrogen and oxygen components, which can then be separated into their isotopes. The Nazis tried to produce heavy water in Norway for atomic energy experiments during World War II but Allied bombing wrecked the plants.

Control of the reactor is through ionization chambers filled with boron trifluoride. These keep track of the reactor's activity and slow it down through cadmium plates in the space between the two-foot thick reflecting graphite and the reactor tank.

In case of accident and if the rate of neutron production threatens to turn the reactor into a bomb, a remotely controlled valve can flood the whole mechanism with heavy water.

Only France is definitely known to have an atomic reactor outside of America, Canada, England and possibly Russia.

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## RADIO

# Coast-to-Coast TV Soon

➤ COAST-TO-COAST television from east to west will begin on Sept. 30 on a regular schedule, but federal permission to erect broadcasting stations to make full use of the transcontinental network will be delayed at least a year.

The coast-to-coast television transmission becomes possible with a radio-relay system recently completed from Omaha to California which now stretches the system across the country. It is primarily for telephone service but will be used part time for television. Present plans call for its use with TV five hours a week. Before the end of another month, equipment will be ready for regular west-east transmission, it is expected. Experimentally, it was used in connection with the Japanese Peace Treaty Conference at San Francisco.

The government freeze on television broadcasting stations, which went into effect in September 1948, was expected to be lifted by the Federal Communications Commission later this year and permission for new stations authorized. Permits will have to be delayed, the FCC has announced, because of the increased demands for licenses and the large number of protests against stations tentatively proposed.

At the present time there are 109 television broadcasting stations in the United States. These stations bring television programs to a high percentage of the nation's

population, but there are vast areas outside reception limits. The government freeze was due to a shortage of wavelength channels in the air within the very-high-frequency band now used by television. Nearby stations must employ widely separated wavelengths or they interfere with each other.

Using present channels, and new channels that will be possible with the development of ultra-high-frequency for TV, the federal office expected to give some 2,000 stations room to operate. FCC tentatively allotted 1,256 cities 1,965 station outlets. Cities not served are raising objections to proposed assignments. Over 1,200 such protests have been received. The result is that the FCC must take additional time to give full consideration to these protests.

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## MEDICINE

# Female Hormone Sparks Minds of Older Women

➤ OLDER WOMEN can be rejuvenated mentally by treatment with female sex hormone, it appears from results reported by Drs. B. Mcd. Caldwell, R. I. Watson and W. B. Kountz of Washington University School of Medicine to the Second International Gerontological Congress in St. Louis.

They can think better, they are more willing to spend intellectual energy, they remember better and they are not so set in their habits and ways of thinking.

Psychological tests showing this improvement in a group of women whose mean age was 76 were reported at the meeting. Previously the St. Louis doctors had reported that women in the city home for the aged seemed more alert and interested, felt better and showed more initiative, energy and social responsiveness when getting the female hormone treatment.

The tests reported bore out these impressions.

The hormone treatment gives better results if continued for one year than if given for only six months.

The good results reported do not mean a panacea has been "miraculously" found for all the ills and infirmities of old age, the St. Louis doctors stated. But they believe that, if these results are reached with other groups, the method opens the way to treatment having "definite psychological benefits for older females in our culture."

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## GEOGRAPHY

# Israel May Play Role of Switzerland in Middle East

➤ ISRAEL MAY well become the Switzerland of the Middle East, while on a smaller scale she may play a role in the region similar to Japan before 1939, in the opinion of C. G. Smith, University of Oxford geographer.

The Oxford geographer points out that Israel's main advantage for industrial production is undoubtedly her population, which consists of numerous highly skilled personnel, together with others used to a very low living standard, to whom the incentives and pioneer spirit found in Israel are a great stimulus.

Israel's natural resources are very poor. She has no domestic coal supplies, iron ore, metallic minerals or oil, but despite this disadvantage she already has a car and truck assembly plant at Haifa, a shoe factory at Jerusalem, a plastics factory at Aka, two automobile tire plants at Petah Tiqva and Hadera, a concrete pipe plant at Migdal Gad, and the nucleus of a steel industry. A glass and ceramics factory is going up in Beersheba.

To establish economic solvency, Israel will have to rely on low relative costs, marketing skill, and a variety of low-weight, high-cost articles.

Mr. Smith believes that recent trends such as the export of low-priced dentures, radio sets, woolen textiles, and chocolate to markets as dispersed as western Europe, Turkey and Yugoslavia supports his view, given in a report to the British Association for the Advancement of Science, as to Israel's future economic position in the Middle East.

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