



Acoustical Society

San Diego Meeting Attracts 350

The most recent West Coast meeting of the Acoustical Society of America took place late last year in San Diego's Balboa Park, where the especially well-attended sessions on aircraft noise were punctuated from time to time by illustrative sound effects from both jet and propeller-driven aircraft flying overhead. The three-day meeting, which began on Thursday, November 13th, was attended by some three hundred and fifty registrants, more than two hundred of whom also attended the Society's informal dinner at the U. S. Grant Hotel on Friday night to hear Lee A. DuBridge, president of the California Institute of Technology, speak on "Physicists in California".

Of the ninety papers making up the technical program, eleven were invited addresses. Two of these, by Hugo Benioff of the Caltech Seismology Laboratory and by Louis B. Slichter of the Institute of Geophysics at the University of California at Los Angeles, introduced the meeting's first session, which dealt with acoustical phenomena and techniques in seismology.

The aircraft noise program, under the chairmanship of Richard H. Bolt of the Massachusetts Institute of Technology, provided convincing evidence that the aircraft industry, the government, and a large number of acoustical laboratories are devoting much time, effort, and money in an attempt to gain a better understanding of the noise problem and to provide better means of aircraft noise control.

The steady pressure of military demands for rapid development of high-powered aircraft, on the one hand, and that of a growing public reaction against unwanted noise, on the other, have focused attention on noise control as an immediately important region of aeronautical research. One of the chief difficulties, it was emphasized, is that noise control measures have not always been able to keep up with the pace set by aircraft development, which has not only posed a serious economic problem in terms of replacing costly control facilities, but has also had the effect of inhibiting certain types of aircraft power-plant research and development. Theoretical results have been encouraging for some aspects of the propeller noise problem, it was suggested, but jet engine designs for aircraft present a far more threatening aspect in terms of their contributions to a noisy America, and at the same time offer a direct challenge to acoustical scientists.

Other sessions of the meeting covered such topics as

electroacoustic transducers, the calibration of transducers, hearing, loss of auditory function after exposure to sound, and the attenuation, scattering, diffraction, and propagation of sound.

Particle Accelerators

Brookhaven Conference Reported

The high-energy accelerator conference held on December 16 and 17, 1952, in conjunction with the dedication ceremonies of the cosmotron at Brookhaven National Laboratory, Upton, N. Y., was attended by over one hundred scientists, including many visitors from European, Canadian, and Mexican laboratories, as well as representatives from the major accelerator centers of the United States.

The sessions of the first day were devoted, in the main, to descriptions of existing machines and proposed modifications. The talks were grouped according to machine species: frequency-modulated cyclotrons and linear accelerators were discussed in the morning, and synchrotrons, both proton and electron, in the afternoon. Discussions on the second day were concerned chiefly with the new alternating-field-gradient type of machine, both of the circular synchrotron and linear accelerator variety. The present state of the theory was presented together with some discussion of the difficulties recently realized in connection with inhomogeneities in the magnetic field. This was followed by several design proposals both of a general nature and for specific energy values. At the end of the meeting, members visited the cosmotron for a demonstration of this machine in operation at 2 Bev.

The subject of frequency-modulated cyclotrons was introduced by R. L. Thornton, of Berkeley, who remarked on the simplicity and reliability of these machines. For example, the 184-inch cyclotron at Berkeley is now in operation at 95% monthly efficiency on a 20-hour day, 7-day week basis. However, the great need at the present is to obtain better external beams free of the background radiation that is so troublesome when using internal targets. Only 0.1% of the circulating beam is now extracted at Berkeley and that only for a few tenths of a microsecond. Other means are under investigation, in the hope of improvement. Changes now being planned in this cyclotron include a reduction of magnet gap and additional magnetizing coils so as to obtain 730 Mev protons, 450 Mev deuterons, 900 Mev alpha particles, or 1.1 Bev He^3 nuclei. Experiments on a vibrating reed to replace the rotating capacitor are in progress.

At the University of Chicago, the 170-inch cyclotron is used mainly to produce 450 Mev protons. The protons bombard a Be target to produce mesons that are sorted by the stray magnetic field of the machine into beams ranging in energy from 66 to 227 Mev. Experiments mentioned by H. L. Anderson included meson scattering by liquid hydrogen, neutral pi meson production by proton-proton collision, neutral pi meson