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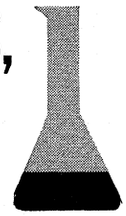

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the proteins discussed in this symposium is a polymer and that variation in its subunit structure leads to altered function. Mechanisms controlling the synthesis of specific polypeptides or governing their association seem immediately related to the functional differentiation of cells and in fact may be fundamentally responsible for differentiation. It is a moot question as to whether all the characteristics of any organism are ultimately attributable to intrinsic molecular structure or whether pre-existing organization (as in the egg or embryonic cell) confers specific order on molecular populations independently of the molecular properties themselves. Some support for both points of view could be found in this symposium.

W. D. McElroy

Johns Hopkins University, Baltimore, Maryland

Resonant Particles in High-Energy Physics

Recently discovered resonant particles were the main theme of a high-energy physics meeting held at Ohio University, Athens, 26–28 April 1963. The objective of the meeting, attended by about 90 physicists from the United States and Europe, was to achieve a better understanding of the status of the many resonance states and new particles that have been discovered or have shown some evidence of existence in recent experiments. More than 30 elementary particles or resonance states are now known to exist. Until recently there had not been a coherent picture that could serve as a framework to tie all these particles and states together.

Among the papers of general interest was a comprehensive survey of the isobaric states of mesons and baryons presented by R. Dalitz (University of Chicago). He reviewed the classification of these states into multiplet schemes based on the unitary symmetry model originally suggested by S. Sakata (Osaka University, Japan). This is essentially a symmetry scheme which is a generalization of the isotopic spin. Practically all the existing states fit into this representation very well, and form families of resonances whose structure can be conveniently studied.

Evidence for the existence of a particle which decays into two charged pions (π^+ and π^-) was presented by D. K. Robinson and E. O. Salant (Brookhaven National Laboratory) and W. D. Walker (University of Wisconsin). The mass of the particle was determined to be 782 Mev, which coincides with that of the known ω particle. Since the ω particle usually decays into three pions ($\pi^+\pi^0\pi^-$), this particle is interpreted as the two-pion decay mode of the ω. The branching ratio of the two-pion decay mode versus the three-pion decay mode:

$$\frac{\omega \rightarrow \pi^+ + \pi^-}{\omega \rightarrow \pi^+ + \pi^- + \pi^0} \sim 5 \text{ percent.}$$

G. Goldhaber and S. Goldhaber (University of California) presented evidence for the production of double resonances of the following reaction:

$$K^+ + p \rightarrow K^* + N^*$$

where K* and N* are the K meson resonance state (895 Mev) and the nucleon resonance state (1238 Mev), respectively. This subsequently decays into a four-particle final state:

$$\begin{aligned} K^- + p &\rightarrow K^+ + \pi^- + p + \pi^+ \\ &\rightarrow K^0 + \pi^0 + p + \pi^+ \\ &\rightarrow K^0 + \pi^+ + n + \pi^+ \end{aligned}$$

A one-pion exchange model with a form factor gives a good fit in the experimental angular distribution.

A. Thorndike (Brookhaven) reported the observation, for the first time, of antihyperons in a 20-inch hydrogen bubble chamber in the 3.69-Bev/cm anti-proton beam of the 33-Bev Brookhaven alternating gradient synchrotron.

More detailed information on the properties of $\varphi(K_1K_2)$, the most recent member of the family of newly discovered resonant particles, was presented by J. Leitner (Syracuse University) and N. P. Samios (Brookhaven). They reported the following information: mass = 1019 ± 1 Mev; parity, $P = -1$ $(= C)$; spin $J = 1$; width $\Gamma_T > 0$; isospin $I = 0$ or $G = -1$.

A report on high-energy elastic scattering and Regge pole predictions was presented by L. C. L. Yuan (Brookhaven). Slightly over a year ago a theory based on Regge pole hypothesis predicted that the diffraction pattern in high-energy elastic scattering shrinks with increasing energy. This means that the radius of interaction of a nucleon becomes larger at higher energies. It has also been proposed that all the strong interacting particles are associated with Regge poles and that these poles control the asymptotic behavior of scattering amplitudes. These predictions have aroused great excitement

and interest in the physics community.

A precision experiment recently performed at Brookhaven had established that in proton-proton elastic scattering, a shrinkage in the diffraction pattern indeed exists in the high energy region of from 10 to 20 Bev, but found no shrinkage in the case of $\pi^- + p$ and $\pi^+ + p$ scatterings in a similar energy region. These results demonstrate conclusively a contradiction to the simple Regge pole hypothesis originally proposed.

This conference was sponsored by Ohio University, and the persons chiefly responsible for its organization are Charles A. Randall, chairman, and B. A. Munir.

LUKE C. L. YUAN
Brookhaven National Laboratory, Upton, New York

Forthcoming Events

July

22–26. Psychosomatic Aspects of **Neoplastic Disease**, Cambridge, England. (L. L. LeShan, Intern. Psychosomatic Cancer Study Group, 144 E. 90 St., New York 28)

22–26. **Microscopy** Symp., Brighton, England. (E. C. Bitoy, McCrone Research Inst., 451 E. 31 St., Chicago 16, Ill.)

22–27. **Molecular Spectroscopy,** intern. congr., Budapest, Hungary. (Hungarian Travel Information, 595 Madison Ave., New York 22)

23–27. **Chemotherapy**, 3rd intern. symp., Stuttgart, Germany. (C. A. Hackethal, 13th and Harrison Ave., VA Hospital, Oakland, Calif.)

24–27. **Nucleon Structures**, intern. conf., Stanford, Calif. (R. Hofstadter, Dept. of Physics, Stanford Univ., Stanford

25. **Chemotherapy**, 1st intern. meeting, Stuttgart, Germany. (H. P. Kuemmerle, Postfach 3030, Stuttgart 1)

25–26. **Veterinary Toxicology,** conf., New York, N.Y. (K. L. Gabriel, School of Veterinary Medicine, Univ. of Pennsylvania, Philadelphia)

27–3. Institute of **Religion in an Age of Science,** 10th conf., Portsmouth, N.H. (Inst. of Religion in an Age of Science, 280 Newton St., Brookline 46, Mass.)

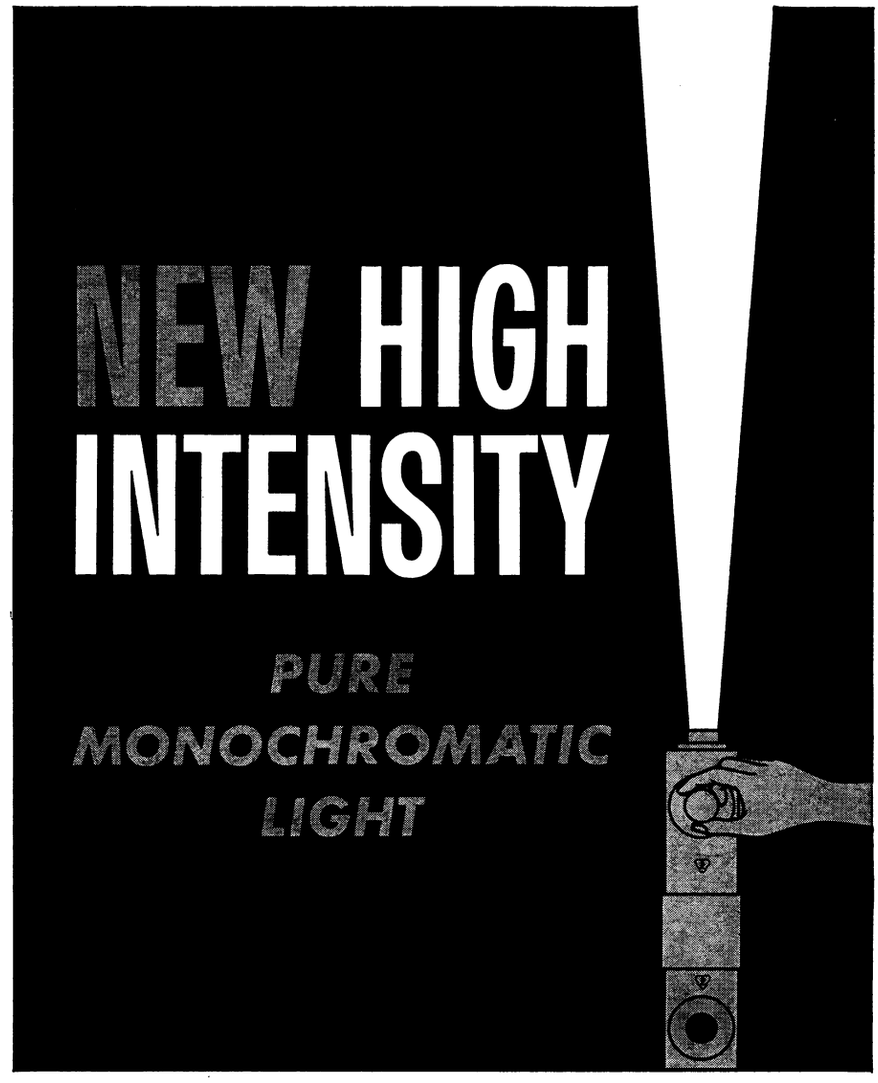
28–1. **American Veterinary Medical Assoc.** 100th annual, New York. (AVMA, 600 S. Michigan Ave., Chicago 5, Ill.)

28–3. **Pediatrics**, 7th Pan American congr., Quito, Ecuador. (J. Vallarino, P.O. Box 2269, Quito)

29–1. International **Psycho-Analytical** Assoc., 23rd congr., Stockholm, Sweden. (E. R. Zetzel, Intern. Psycho-Analytical Assoc., 14 Hubbard Pl., Cambridge 38, Mass.)

29–3. Global Impacts of **Microbiology**, intern. conf., Stockholm, Sweden. (M. Tveit, Swedish Sugar Corp., Arlöv, Sweden)

29–9. **Chemicals and Paper,** 1st annual conf., Appleton, Wis. (Inst. of Paper Chemistry, Appleton)



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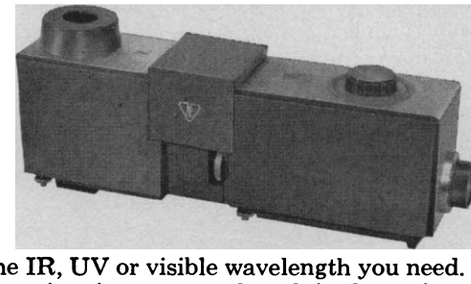

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