T. E. Bunch, F. R. Park, and T. B. Massalski reported that silicate inclusions found in the Campo del Cielo hexahedrites are comparable in chemical composition, texture, and mineralogy with certain terrestrial peridotite and with olivine-rich inclusions in basaltic rocks. Other craters of probable meteoritic origin, on the basis of comparison with known craters, were discussed by Robert Dietz; these include the Lonar Lake Crater in India, Pretoria Salt Pan, Roter Kamm Crater in Southwest Africa, and the Vredefort Ring. The Lonar Lake Crater was investigated in detail by T. P. Kohman and P. W. Sahasrabudge. They reported a throwout area 0.5 km wide and 10 m thick surrounding the crater; no meteoritic fragments have been found.

Meteorites themselves continue to be intensely studied by both classical and newly developed techniques. R. A. Schmitt, R. H. Smith, and G. G. Goles gave recent results of their analyses of meteorites, chondrules, and mineral separates by neutron activation; indications are that, although the abundance values of selected elements in chondrules from type II carbonaceous chondrites agree approximately with solar-abundance values, the concentration of many other elements with diverse chemical properties must be determined in these chondrules before they can be regarded as approximating condensations from the primordial solar nebular matter. M. Nishimura and T. Nasu (Hokkaido University) indicated that zinc is enriched in carbonaceous and enstatite chondrites, as compared with ordinary chondrites. This pattern was also indicated by Edward Anders who, in order to explain the distribution data of more than 20 trace elements in carbonaceous chondrites, presented a paper supporting the idea that meteorites are a blend of two types of material: an undepleted fraction rich in volatiles, and a depleted fraction from which the volatiles were lost.

Studies of natural and cosmic-ray produced nuclides in meteorites were presented by several investigators. Dieter Heymann presented evidence to indicate that the Canyon Diablo Nos. 2 and 3 meteorites probably originated inside the original mass rather than as independent falls or satellites of the Canyon Diablo fall. Cosmic-ray exposure ages of about 40 iron meteorites were determined by H. Voshage and H. Hintenberger (Max-Planck-Institut, Mainz) by the potassium method. Isotope-abundance ratios, $^{41}K/^{40}K$ and $^{39}K/^{40}K$, indicate that meteorites with exposure ages over 10^9 years are very rare. Sharp peaks in the age-distribution curves are obtained for coarse octahedrites at 900 million years and for medium octahedrites at 650 million years; these suggest two major collisions in space.

Application of the electron microprobe to meteorite research was discussed by Klaus Keil. This modern, powerful tool has enabled mineralogists to investigate the chemical composition of minute phases in meteorites and has been instrumental in elucidating several new minerals from meteorites. Data obtained by this technique were used by J. I. Goldstein and R. E. Ogilvie to throw some light on the age-old problem of the growth of the Widmanstalten pattern in metallic meteorites; they proposed a low-pressure model which successfully explains the formation of plessite, the development of the two-phase structures in ataxites, and the decrease in nickel concentration in kamacite near its boundaries.

Robert Dodd presented data on chondrite fabrics which indicate deposition from a moving medium. This new approach to the study of chondrites seems to promise useful and interesting data. Detailed optical studies of the opaque phases in chondrites by Peter Buseck (Arizona State University) indicated a remarkable range of microtextures which support previous evidence that violent shocking occurred in each meteorite studied, and which indicated another area in which further detailed work is needed.

Because the Meteoritical Society provides an opportunity for many individuals interested in some aspects of the recovery and study of meteorites to participate, papers range from aspects of recovery and discovery of new specimens to sophisticated investigations of well-documented ones. Each is an important contribution to the overall task of discovering the circumstances of the origin and history of meteorites. Those attending the meeting could also inspect the outstanding collection of more than 600 meteorites at Arizona State University. A field trip to the famous Barringer Meteorite Crater near Winslow, Arizona, and the U.S. Geological Survey's Astrogeology Branch facilities at Flagstaff, Arizona, concluded the meeting.

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Transformation of Peasant Societies

The Vicos (Peru) project for transforming Andean Indian serfs into free commercial farmers was analyzed at a symposium (Montreal, 26 December 1964) cosponsored by the American Political Association and the sections on social and economic sciences (K) and anthropology (H) of the AAAS. With Philip Morrison (Cornell) presiding, transformation of the political, legal, and social systems of suppressed peasant systems was discussed.

The opening speaker, A. R. Holmberg (Cornell), described the setting, goals, procedures, and achievements of the Cornell Peru Project which he directs. Noting that most of the world's population is peasantry, Holmberg emphasized the importance for national development of enabling peasants to participate in the modernization process. Under traditional conditions, peasants take little or no part in making decisions, accumulate little wealth, suffer denigration, are illiterate, lack modern skills, and endure ill health; they are beaten into submission.

The Vicos project set out to promote human dignity and form local institutions that would widen rather than restrict the sharing of values, and to augment productivity through increasing control over the natural environment. Operating with research funds only, the Cornell Peru Project utilized Indian labor and the land base for capital development. Classrooms, teachers' quarters, clinic, warehouses, and the like were constructed with reinvested profits from commercial agriculture, profits always siphoned off before Cornell's intervention. Holmberg stressed that lasting modernization of Vicos depended upon land-tenure reform which placed title in the hands of the new peasants, a step made possible only by the firm backing of the intellectual elite of Peru.

M. C. Vázquez (Cornell) explored the relation between power and wealth. He pointed out that virtually the only form of wealth possessed by Indian manor serfs at Vicos was cattle. Intervention by the Cornell Peru Project has equipped the new peasants to engage in family- and community-scale commercial farming that brings in significant cash income. Land-tenure reform brought about by purchasing the lands has changed houses, trees, and land that formerly belonged to the absentee owner of the manor into Indian-peasant assets. Vázquez stressed the de-

gree to which the wider sharing of wealth in Vicos has liberated the poor (by local standards), who made up 92.3 percent of the serf population in 1951 from exploitation not only by the manor lessor and by mestizo merchants in nearby towns, but also by the 7.7 percent of the serf population that owned enough cattle to command ready cash under the manorial system. Cash income permits new peasants to hire draft animals instead of waiting until the ox-wealthy farmers finish preparation of their own fields; it allows them to purchase fertilizers instead of begging animal owners to graze their stock on the supplicants' fields, or watching soil fertility and crop production decline. Modernization has materially equalized personal relations in Vicos.

P. L. Doughty (Indiana) discussed interrelations between power, respect, affection, and rectitude values in Vicos. He emphasized that in 1951 the people of Vicos were very subordinate in Peruvian society. The hierarchical organization of the manorial system affected every aspect of the life of a serf. Being regarded as property and infrahuman, serfs received no respect from members of the dominant group. Their only source of affection was the family, in which individual worth was reckoned largely in economic terms; and affection suffered in competition with the drive for survival. Regarded as immoral and outside the national legal system, Vicos serfs shared very few rectitude values with other Peruvian citizens. Their own self-image was negative.

The impact of the Cornell Peru Project has been markedly reflected in improving interpersonal relations. With abolition of servitude, payment of wages, and encouragement of initiative, Vicos Indians began to feel increased personal dignity, worth, and status. They began to deal more effectively with outsiders and to develop their potential abilities. With the acquisition of land, one major value of still-traditional Peruvian society, the new peasants of Vicos automatically acquired greatly enhanced status as landowners. The firm economic production base has contributed to a growth of community pride and prestige, regionally and nationally. Improving control over environment develops growing respect for the individual within the family and great amelioration in the position of children.

J. O. Alers (Cornell) pointed out that the strategy of development at Vicos, although not by intention, has followed the alternative of devoting major available resources to the development of education and the economy, while leaving health improvements that tend to lower the death rate at the lowest priority. He noted that the level of anxiety has risen among Vicos males as modernization proceeds.

As a demographer, Alers stressed the threat posed to the economic and social progress thus far achieved in Vicos by the increasing population and the effect of the resultant population density on the agricultural land base. He expects the future development of Vicos to be greatly enhanced if the new peasants are able to employ political influence at the highest levels of the Peruvian government. This will be possible only if the people increase their literacy in order to form an effective voting bloc and if their augmented wealth enables them to organize themselves and similar rural communities into pressure groups with resources to carry out productive lobby-

ing. To achieve such a condition, Vicos needs to continue its educational and economic development, perhaps at the expense of immediate consumption in the form of health improvements. It cannot be done if the number of people increases so swiftly as to compromise their educational and economic means to political power, according to Alers.

H. F. Dobyns (Cornell) maintained that enlightenment and skill are strategic components of power. He characterized the traditional Andean manor as a social system permitting the overlord to monopolize enlightenment in order to maintain the traditional exploitation of Indian serfs; serfs were excluded from the enlightenment process. Dobyns labeled the Cornell Peru Project intervention a systematic diffusion of knowledge of many kinds by various techniques of formal and informal instruction. He emphasized numerous new power domains that have resulted in Vicos from the enlightenment of its people. Literate schoolboys serving as field-labor time-keepers for nonliterate community council delegates have acquired considerably more power than was ever before available to persons of their age in Vicos. Literate sons have also acquired much power within their families, particularly with regard to commercial and economic relations with Spanish-speaking mestizos; their increased authority shows that the traditional authority of elders in this society has been a function of slow but cumulative enlightenment rather than of aging per se. For the first time, Dobyns continued, educated Vicos boys and girls have established power domains over children of other families in zones other than their own as public school teachers. The Vicos data demonstrate that rapid social change is possible when it substitutes gratification for deprivation.

In the light of the Vicos experience, H. D. Lasswell (Yale) pointed to the importance of creating policy scientists trained to bring their basic disciplinary training to bear upon practical policy problems. He commented upon the significance of the contextual approach to problem-solving on the part of the director of the Cornell Peru Project and the pertinence of this method for national development. Using Vicos as a springboard, Lasswell outlined a generalized model for value shaping and sharing as it contributed to inducing initiatives and accelerating development. Finally, he discussed induced initiative as a national development strategy.

In closing the session, Lasswell stressed the contribution of the Vicos project to the policy-science technique of prototyping, which he distinguished from experimentation: although the papers were couched in terms of value-category analysis, their general tenor was of prototyping.

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Forthcoming Events

March

1–2. Systems for the **Intellectual Organization of Information**, seminar, Rutgers Univ., New Brunswick, N.J. (S. Artandi, Graduate School of Library Service, Rutgers Univ., New Brunswick)

1–4. **Unmanned Spacecraft**, Los Angeles, Calif. (R. D. DeLauer, TRW/Space Technology Laboratories, Norton Air Force Base, San Bernardino, Calif.)

1–5. National Council on the **Aging**, 14th annual, Washington, D.C. (NCA, 49 W. 45 St., New York, N.Y. 10036)

1–5. Society of **Plastics Engineers**, annual, Boston, Mass. (G. P. Fong, c/o Sweetheart Plastics Inc., Guildware Park, Wilmington, Mass.)

4–5. Physical Basis of **Radioisotope Applications**, Wantage, England. (C. G. Clayton, U.K. Atomic Energy Authority, Wantage Research Laboratory, Wantage)

4–6. Fundamental **Cancer Research**, 19th annual symp., Univ. of Texas, Houston. (D. N. Ward, Univ. of Texas Medical Center, Houston 77025)

4–6. Central **Surgical** Assoc., Milwaukee, Wis. (C. E. Lischer, 457 N. Kingshighway, St. Louis 8, Mo.)

5–6. **Congenital Malformations of the Central Nervous System**, intern. colloquium, Paris, France. (J. Chevreux, c/o Service de M. le Prof. Leon Michaux, Hôpital de la Salpetrière, Boulevard de l'Hôpital, Paris[13e])

5–7. American Assoc. of **Pathologists and Bacteriologists**, Philadelphia, Pa. (M. I. O'Connor, Williams and Wilkins Co., 428 E. Preston St., Baltimore, Md. 21202)

5–7. National **Wildlife** Federation, 29th annual, Washington, D.C. (T. L. Kimball, 1412 16th St., NW, Washington, D.C.)

7–10. International Acad. of **Pathology**, 54th annual, Philadelphia, Pa. (F. K. Mostofi, Armed Forces Inst. of Pathology, Washington, D.C.)

7–10. **Mineralogical** Assoc. of Canada, 10th annual, Toronto, Ontario. (J. A. Mandarino, Dept. of Mineralogy, Rolay Ontario Museum, 100 Queen's Park, Toronto 5).

8–9. **High Speed Testing**, intern. symp., Boston, Mass. (R. H. Supnik, Plas-Tech Equipment Corp., 4 Mercer Rd., Natick, Mass.)

8–10. **Calibration**, intern. conf., Leipzig, Germany. (Kammer der Technik, Ebertstr. 27, Berlin W.8)