genetics are already beginning to contribute to both sciences (see, for instance, Babcock and Stebbins, 1938, and Riley,[2] 1938). The integration of these two disciplines can go forward more smoothly if it is generally realized that they have worked with different materials as well as by different techniques.

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OAT HAY POISONING

IN eastern Wyoming cattle are occasionally poisoned by ingesting oat hay or oat straw. Sheep and horses are not believed to be affected. The first loss reported to us occurred in October, 1934, at which time twenty-nine head of cattle of both sexes and of all ages died within a few hours after eating well-cured oat hay. Since 1934 other cattlemen have reported losses under similar conditions. Losses due to oat hay have also been noted in limited areas in other states.

Investigators[1,2] at the Colorado State College have published two progress reports on oat hay and straw poisoning. Because oat hay brings about symptoms of asphyxia and death due to asphyxiation, they suspected hydrocyanic acid as the cause of death but were unable to show its presence in the feed and only rarely could show a trace of this poison in the paunches of animals which had died from eating oat hay. They found cyanide antidotes to be of no benefit.

In this laboratory, using toxic oat hay from Dayton, Wyoming, it has been found that eleven pounds of this hay will kill a 350-pound steer in about nine hours after feeding. A water extract of eleven pounds of the same hay caused another steer of similar size to go down with typical symptoms from which he later recovered. In both instances a chocolate brown color in the blood was observed. This was found, by means of the spectroscope, to be due to high concentrations of methemoglobin in the red blood cells. This was confirmed by the conversion of this pigment into reduced hemoglobin by the addition of hydrogen sulfide. The cells are not laked and the plasma remains clear and straw-colored. Another calf fed toxic oat hay from Gillette, Wyoming, showed no symptoms nor any methemoglobin in the blood six hours after being fed. Three hours later the animal was down with typical symptoms and a high concentration of methemoglobin was present in the blood at that time. This animal survived and the following morning showed no symptoms, nor could methemoglobin be found in a blood sample taken at that time.

[2] Herbert Parkes Riley, *Amer. Jour. Bot.*, 25: 727–738, 1938.

[1] Newson, *et al.*, *Jour. Am. Vet. Med. Assn.*, 43: 66, 1937.

[2] F. Thorp, Jr., *Jour. Am. Vet. Med. Assn.*, 45: 159, 1938.

The formation of high concentrations of methemoglobin in the blood of cattle poisoned with oat hay explains the asphyxial symptoms produced and also offers an explanation for the subsequent abortion in pregnant cows receiving sublethal doses of this feed, for during the period of partial asphyxia of the mother the fetus is probably killed by asphyxiation and is later aborted. The fact that the poisonous principle is stable towards heat and soluble in water will be of great value in its ultimate isolation and identification.

In Wyoming toxic oat hay or straw develops in restricted areas on heavy soils usually in the foothill regions. It is not known to us what influence, if any, the soil may have upon the development of the toxicant. Nor are we prepared at this time to suggest what influence climatic factors may exert. Meager records lend support to the belief that toxic oat hay or straw may be expected to develop on the same plot of ground. This point has not been confirmed experimentally. Poisonous oat hay may develop on dry land or irrigated farms. Acute deaths have resulted from ingesting the green oat plants in toxic areas. Preliminary investigations therefore indicate that the toxicant is formed during the oat-plants development. The localization of the problem suggests that local influences must be of basic significance.

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EARLY MAN IN WESTERN AND NORTHWESTERN CANADA

TWO discoveries made in Canada by the anthropological field party of the University of New Mexico in 1937 and 1938 have significant bearing upon the problems relating to early man in North America. The object of the field program was to locate sites for excavation, make a general archeological survey and look for evidence of early man in relation to glaciation and possible early migration routes from Asia. It is the opinion of the organizer that there is a need for more physical evidence of early American cultures and culture complexes. Arguments pro and con have been presented for the existence of man in North America during the Pleistocene or ice age. Therefore, it was thought advisable to form a definite program for work in the glaciated and unglaciated areas of western Canada and Alaska in order to correlate, if possible, some of the early cultures with glacial chronology. This work was supported by a grant from the Penrose Fund of the American Philosophical Society and by the University of New Mexico.

Yuma artifacts were found as far north as Ponoka, Alberta, about sixty miles south of Edmonton. Yuma sites were located in southeastern Alberta and south-

western Saskatchewan. Folsom and Yuma artifacts were found in collections made in the vicinity of Calgary and in other collections extending as far east as Regina, Saskatchewan. The collection made by K. H. Jones near Mortlach, Saskatchewan, and described by Edgar B. Howard,[1] indicates that the Folsom complex is post-Wisconsin in age. Mortlach lies within the Altamont (Coteau) moraine, which is dated by W. A. Johnston[2] as probably being the terminal moraine of the Wisconsin movement. The Folsom artifacts of Jones's collection belong to the true Folsom type[3] found in Colorado and New Mexico and are not of the questionable Folsom type sometimes known as Folsomoid, Folsom-like or Generalized Folsom. The same holds for the Folsom points from Alberta. Unless there was a long period of time during which Folsom points were manufactured, the whole Folsom complex may be dated as post-glacial. If glaciation is used as the criterion for the division between Pleistocene and post-Pleistocene, it follows that the Folsom complex is post-Pleistocene.

Near Loon Lake at the top of a pass between the Mackenzie and Yukon drainages, about eighty miles south of the Arctic coast, artifacts were found on terraces above the summit of the pass. These artifacts were flaked by the percussion method. No projectile points were found on the site, though future excavations might produce them. The crudeness of these artifacts and the types found indicate upon comparison with other American artifacts that they belong to an early culture phase. They are similar to the Lake Mohave, California,[4] finds of the W. H. Campbells. They are also similar to the artifacts found by M. R. Harrington on the lowest and oldest horizon at Borax Lake, California.[5] Not only is there a close resemblance between the artifacts, but both the Loon Lake site and the lowest cultural stratum of the Borax Lake site failed to produce projectile points. These artifacts may represent an early American culture which in a number of respects can be compared with the paleolithic of Europe, although making this comparison does not necessarily imply that there is any connection between European and American finds, either in time or culture sequence. The comparison of early American stone implements with those of the European eolithic, paleolithic, and neolithic types is in all probability a false premise when such comparison is made to show that the two cultures are of the same antiquity. Northern and central Asia will undoubtedly be the areas that will produce artifacts that may be safely correlated with American finds. More work on early American archeology should be done in the glaciated areas where chronological dating in relation to the glacial periods is possible.

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THE BLUE JAY CACHED THE NUT

IN SCIENCE for January 13 of the present year, Arnold Gesell asks, "What did the blue jay do with the nut?" The west window of my Tropical Research Laboratory in the New York Zoological Park opens on an extent of lawn enclosed by shrubs and trees. This is a favorite place for the nut caches of grey squirrels. Scores of acorns are buried, some within a yard of the window.

This last autumn at least two blue jays have systematically robbed the squirrels. One bird which I watched, perched in a nearby tree. Within two minutes after a nut was pushed down and covered up by a squirrel, the jay was on the spot, and soon unearthed the acorn. It then flew up, perched for a few seconds, then returned to another part of the lawn, and jammed the nut into the ground, driving it home with repeated blows of its beak. This happened at least four times within an hour, and perhaps oftener. Two jays repeated this performance many times within a period of several weeks.

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SOCIETIES AND MEETINGS

THE PENNSYLVANIA ACADEMY OF SCIENCE

THE regular spring meeting of the Pennsylvania Academy of Science was held on April 7 and 8 at the Pennsylvania State College. A total registration of 157 is reported. Eighty-seven papers were read, distributed among the sciences, chiefly genetics, geology, pharmacognosy, physical sciences, botany and zoology. The annual dinner was held at the Nittany Lion Inn on Friday evening. Following the dinner, an illustrated lecture was delivered by Dr. Arthur B. Cleaves, geologist with the Pennsylvania Turnpike Commission. Dr. Cleaves spoke on "Pennsylvania's All-Weather Highway." This is the new road which is tunnelling the mountains between Chambersburg and Pittsburgh.

The following officers were elected: *President,* Dr. R. W. Stone, Pennsylvania Topographic and Geologic Survey; *President-elect,* Professor H. W. Thurston,

[1] Edgar B. Howard, *American Antiquity,* 4: 3, January, 1939.

[2] W. A. Johnston, "Quaternary Geology of North America in Relation to the Migration of Man; The American Aborigines," University of Toronto Press, 1933.

[3] Howard, *ibid.*

[4] Southwest Museum Papers, No. 11, 1937.

[5] Charles A. Amsden, correspondence.