Concerning the geology in the immediate vicinity, the canyon walls, above and below the occurrence, show sharply flexed Monterey (middle Miocene) shales. Just at the fire the structure is synclinal, the axis of the fold trending about parallel with the coast. The canary yellow discoloration of the shale due to sulphur is well developed, and exactly opposite the fire a sulphur spring trickles from the bank. At other points in and near this canyon the shales are impregnated with oil.

There is some doubt as to the origin of the fire. As no brush grows in the vicinity, and no one is living near, the origin can not well be ascribed to ignition from burning refuse on the surface. There has been a thunder storm within the month, before which time people passing up this canyon did not observe anything unusual at this point except a strong odor which was attributed to the sulphur spring. It, therefore, seems likely that the fire was ignited by lightning or else is a case of spontaneous combustion.

This unique variety of metamorphism has been at work locally in many regions of bituminous rocks in California, where a process of combustion of the hydrocarbon contents has altered the naturally white, soft shale to a rock of brilliant rose or brick-red color, and rendered it in cases hard and vesicular like scoriaceous lava. The resemblance of the products to those of volcanoes and the existence of centers like solfataras where the process of burning has been going on during the last half-century, has given rise, as in the present instance, to the statement that there were living volcanic vents in California. Though the combustion is usually local in its effects, the number and wide distribution of the occurrences of burnt shale lend importance to the phenomenon. The presence of burnt shale at depths varying from 90 to 1,040 feet below the surface, as discovered in the drilling of oil wells, proves that the burning has taken place deep down within the oil-bearing formation, as well as at the surface where it has been more commonly found. And, further, the discovery of fragments of it at one place at a depth of at least 10 feet below the surface in bedded deposits of Pleistocene age proves that such action has gone on in ages past.

The Monterey shale, of middle Miocene age, is the principal oil-bearing formation of the state, and the process of burning has had its chief effect upon portions of this formation. It is composed almost exclusively of soft and hard, thin-bedded, siliceous shales, which are largely of diatomaceous origin.

The particular shale area in which the phenomenon described is taking place forms an extensive belt underlying the Los Angeles-Santa Monica plain on the south side of the Santa Monica Mountains. Where exposed this shale is usually petroliferous, and is the source of the petroleum in the wonderfully productive Salt Lake oil field west of Los Angeles. The nearest wells, however, are eight or nine miles distant from the burning area. Although it has been impossible to put out such fires by artificial means in the instances heretofore attempted, such phenomena, as previously stated, have remained more or less restricted. Considering the surroundings and geographic position of the present area the probabilities are against any damage resulting from the burning shale.

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## JOINT RECOMMENDATIONS OF THE PHYSIOLOGICAL AND BIOCHEMICAL COMMITTEES ON PROTEIN NOMENCLATURE[1]

Since a chemical basis for the nomenclature of the proteins is at present not possible, it seemed important to recommend few changes in the names and definitions of generally accepted groups, even though, in many cases, these are not wholly satisfactory. The recommendations are as follows:

*First.*—The word *proteid* should be abandoned.

*Second.*—The word *protein* should designate that group of substances which consists, so

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far as at present is known, essentially of combinations of $\alpha$-amino acids and their derivatives, *e. g.*, $\alpha$-aminoacetic acid or glycocoll; $\alpha$-amino propionic acid or alanin; phenyl-$\alpha$-amino propionic acid or phenylalanin; guanidin-amino valerianic acid or arginin; etc., and are therefore essentially polypeptids.

*Third.*—That the following terms be used to designate the various *groups of proteins:*

I. Simple Proteins.—Protein substances which yield only $\alpha$-amino acids or their derivatives on hydrolysis.

Although no means are at present available whereby the chemical individuality of any protein can be established, a number of simple proteins have been isolated from animal and vegetable tissues which have been so well characterized by constancy of ultimate composition and uniformity of physical properties that they may be treated as chemical individuals until further knowledge makes it possible to characterize them more definitely.

The various groups of simple proteins may be designated as follows:

(*a*) *Albumins.*—Simple proteins soluble in pure water and coagulable by heat.

(*b*) *Globulins.*—Simple proteins insoluble in pure water but soluble in neutral solutions of salts of strong bases with strong acids.[2]

(*c*) *Glutelins.*—Simple proteins insoluble in all neutral solvents but readily soluble in *very* dilute acids and alkalies.[3]

(*d*) *Alcohol-soluble Proteins.*—Simple proteins soluble in relatively strong alcohol (70–80 per cent.), but insoluble in water, absolute alcohol, and other neutral solvents.[4]

(*e*) *Albuminoids.*—Simple proteins which possess essentially the same chemical structure as the other proteins, but are characterized by great insolubility in all neutral solvents.[5]

(*f*) *Histones.*—Soluble in water and insoluble in very dilute ammonia and, in the absence of ammonium salts, insoluble even in an excess of ammonia; yield precipitates with solutions of other proteins and a coagulum on heating which is easily soluble in very dilute acids. On hydrolysis they yield a large number of amino acids, among which the basic ones predominate.

(*g*) *Protamins.*—Simpler polypeptids than the proteins included in the preceding groups. They are soluble in water, uncoagulable by heat, have the property of precipitating aqueous solutions of other proteins, possess strong basic properties and form stable salts with strong mineral acids. They yield comparatively few amino acids, among which the basic amino acids greatly predominate.

II. Conjugated Proteins.—Substances which contain the protein molecule united to some other molecule or molecules otherwise than as a salt.

(*a*) *Nucleoproteins.*—Compounds of one or more protein molecules with nucleic acid.

(*b*) *Glycoproteins.*—Compounds of the protein molecule with a substance or substances containing a carbohydrate group other than a nucleic acid.

(*c*) *Phosphoproteins.*—Compounds of the protein molecule with some, as yet undefined, phosphorus containing substance other than a nucleic acid or lecithins.[6]

(*d*) *Hemoglobins.*—Compounds of the protein molecule with hematin or some similar substance.

(*e*) *Lecithoproteins.*—Compounds of the

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[2] The precipitation limits with ammonium sulphate should not be made a basis for distinguishing the albumins from the globulins.

[3] Such substances occur in abundance in the seeds of cereals and doubtless represent a well-defined natural group of simple proteins.

[4] The sub-classes defined (*a, b, c, d*) are exemplified by proteins obtained from both plants and animals. The use of appropriate prefixes will suffice to indicate the origin of the compounds, *e. g.*, ovoglobulin, myoalbumin, etc.

[5] These form the principal organic constituents of the skeletal structure of animals and also their external covering and its appendages. This definition does not provide for gelatin, which is, however, an artificial derivative of collagen.

[6] The accumulated chemical evidence distinctly points to the propriety of classifying the phosphoproteins as conjugated compounds, *i. e.*, they are possibly esters of some phosphoric acid or acids and protein.

protein molecule with lecithins (lecithans, phosphatids).

III. Derived Proteins.

1. Primary Protein Derivatives.—Derivatives of the protein molecule apparently formed through hydrolytic changes which involve only slight alterations of the protein molecule.

(*a*) *Proteans.*—Insoluble products which apparently result from the incipient action of water, very dilute acids or enzymes.

(*b*) *Metaproteins.*—Products of the further action of acids and alkalies whereby the molecule is so far altered as to form products soluble in very weak acids and alkalies, but insoluble in neutral fluids.

This group will thus include the familiar "acid proteins" and "alkali proteins," not the salts of proteins with acids.

(*c*) *Coagulated Proteins.*—Insoluble products which result from (1) the action of heat on their solutions, or (2) the action of alcohols on the protein.

2. Secondary Protein Derivatives.[7]—Products of the further hydrolytic cleavage of the protein molecule.

(*a*) *Proteoses.*—Soluble in water, uncoagulated by heat, and precipitated by saturating their solutions with ammonium sulphate or zinc sulphate.[8]

(*b*) *Peptones.*—Soluble in water, uncoagulated by heat, but not precipitated by saturating their solutions with ammonium sulphate.[9]

(*c*) *Peptids.*—Definitely characterized combinations of two or more amino acids, the carboxyl group of one being united with the amino group of the other, with the elimination of a molecule of water.[10]

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December 31, 1907

## ORGANIZATION OF A UTAH ACADEMY OF SCIENCES

At a meeting of the Utah science teachers, held in Provo during the holidays, steps were taken toward the organization of a Utah Academy of Sciences. After an informal discussion of some length Dr. Ira D. Cardiff, professor of botany, University of Utah, was elected president and Mr. Geo. W. Bailey, of Weber Academy, secretary. A committee was appointed to draft a constitution and arrange for a future meeting. The committee was composed of the president and the following: Dr. J. A. Widtsoe, president of the Agricultural College; Dr. S. H. Goodwin, president of the Proctor Academy; Dr. W. C. Ebaugh, professor of chemistry, University of Utah; Dr. D. E. Ball, professor of zoology, Agricultural College; Dr. John Sundwall, professor of anatomy, University of Utah; Dr. L. H. Hartman, professor of physics, University of Utah; Professor Marcus E. Jones, botanist, Salt Lake City; Mr. Robert Forrester, geologist, Salt Lake City; Mr. Ernest M. Hall, instructor in biology, L. D. S. High School; Mr. A. O. Garrett, instructor in botany, Salt Lake High School. The committee met in Salt Lake City in February, arranged for a

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[7] The term secondary hydrolytic derivatives is used because the formation of the primary derivatives usually precedes the formation of these secondary derivatives.

[8] As thus defined, this term does not strictly cover all the protein derivatives commonly called proteoses, *e. g.*, heteroproteose and dysproteose.

[9] In this group the kyrins may be included. For the present we believe that it will be helpful to retain this term as defined, reserving the expression peptid for the simpler compounds of *definite* structure, such as dipeptids, etc.

[10] The peptones are undoubtedly peptids or mixtures of peptids, the latter term being at present used to designate those of definite structure.