

**JANUS' VIEW****Presidential Address**

Edw. P. Churchill,  
University of South Dakota

The Romans called him Janus, god of the gateway. Our Sioux brethren might say "Man-that-looks-both-ways." At this 20th meeting of our academy it may be of interest to look both ways.

Some one saw an old negro mammy going along the road, and asked, "Mandy, where are you going?" "Nowhere," she said. "I's bin what I's gwine." We sincerely hope that we have not been where we're "gwine," but that we are going somewhere; that, unlike Alexander, we do not weep for more worlds to conquer. So we pause at this time to look both ways; however, to avoid too osteopathic a treatment of the neck, we shall just look one way at a time.

First it shall be backward at the path down which our predecessors have brought the torch; and then forward where we hope to follow the trail to the west.

Just one score years ago, our learned Charter members brought forth in this state an Academy of Science, conceived in freedom of mind and dedicated to the proposition that all men are created with an equal right to pursue scientific research.

Inquiry into the early history of our Academy would indicate that the idea of the formation of a South Dakota Academy of Science arose independently in the minds of Prof. J. Gladden Hutton of State College and of Dr. Hilton Ira Jones, Head of the Department of Chemistry of Dakota Wesleyan University, the institution where we are now so fittingly holding this twentieth meeting. Dr. Jones came in 1912 to Dakota Wesleyan from Oklahoma where he had helped to organize the Academy of Science of that state. During the fall of 1913 he sent out a circular letter urging the scientists of South Dakota to effect some sort of organization, either in connection with the State Teachers' Association or as a distinct Academy. When the Teachers' Association met that fall nearly all were in favor of a separate Academy and plans were laid to organize such. The arrangements were not completed by

the fall of 1914. In October of 1915 Prof. Hutton sent out a circular letter which revived interest in the Academy and in 1915 the first meeting was held at Aberdeen on November 22-23. Dr. Jones was selected as the first President. Papers were presented, a banquet was held at six o'clock at Guild Hall and talks were made by Professor Cook, then at the University, and by Professor Hutton, who I think has never missed a meeting and is with us today. The attendance is given in the minutes as twenty. Dr. Jones was chosen as the second President to succeed himself. A list of the twenty meeting so far held, together with the dates, places of meeting and the various Presidents is shown on the page facing this article.

There were 103 charter members, of whom 14 are still connected with various institutions of the state; namely Professors Akely, Brackett, Brown, Christol, Dunbar, Gilbertson, Haines, Hansen, Hume, Hutton, Over, Severin, and Wilson and Mr. Frary of the State Chemical Laboratory. I think Professors Hume and Hutton have given papers at every meeting, or nearly so, and probably Professors Severin, Gilbertson, and Haines have attended every meeting, the former two giving papers nearly every time and Professor Haines serving as Secretary-Treasurer since the early meetings. If I refer to these charter members as the grand old men of the Academy it is merely in a eulogistic, not a biological sense.

During these twenty years a great variety of subjects has been investigated. Certain members have become known by their continued pursuit of a particular line of research from year to year, gradually accumulating a greater and greater fund of valuable information in his special field.

Further, during the past few years, in ever increasing numbers we have been bringing our graduate and even undergraduate students to the meetings to set forth the results of their investigations. Witness at this meeting over a dozen graduate and undergraduate students appearing with papers in collaboration with department heads—among these are Lyle Tussing, Frederick Duke, Harvard Lewis, R. W. Shearer, Virgil Johnson, Gilbert Crecelius, Homer W. Carhart, Lyl Andersen, Max Feldman, Robert Cooper, Donald Cooper, Orpheus Meyers, Louis Boullion, Chris Poalillo. This is a fine

custom and should be developed even further. These students are the ones who will soon take our places and look back to us as the "old men" of the academy. This new blood should be introduced and fostered in every way, and it is a fine thing that we are making such a beginning. We must work our graduate students into the various fields of investigation which I shall mention later. Thus we shall have several men under the direction of a pioneer in each field.

At present the Academy seems to be healthy and strong after the depression; we have these I have mentioned of the old guard and a lot of new blood coming in and new fields of investigation opening up. After an enforced lapse of two or three years in the publication of our Proceedings, we have sent to press the material for those years and every effort will be made to provide for prompt publication. I think the members can rely on this and urge that the manuscripts for the papers read here be placed in the hands of Mr. Haines at this meeting or sent at once afterward, since we shall wish to submit the material during June for publication.

Now to turn from this backward glimpse to peer out through the gates into the future. I am indebted to my various colleagues for aid in this peering since I am not bold enough to make suggestions as to new fields of research save perhaps in my own territory. So this portion of my talk is a contribution from workers in other fields who have kindly indicated lines of research which seem profitable to follow in our state.

In chemistry there is the matter of the development of cellulose for basic manufactured products; the growing of the Jerusalem artichoke, a dry country plant, for carbohydrate; the processing of waste plant material for the manufacture of combustible gases; the development of industrial alcohol; the removal of certain impure products from the chalk found in our state so that it may be commercialized.

Another field in chemistry is the chemical investigation of commercial products from various of the crops peculiar to this region, plants that will grow here—from which to manufacture oils, rubber, paper, fuels, etc.—materials for which an artificial demand may be created by advertising—a quick cash

return for crops. Their use as food has definite limits—one can eat only so much.

There is the toxicology of poisonous plants, such as the loco weed and similar plants.

Toxic properties in certain soils—selenium in the soil in certain areas, which brings on a peculiar disease in cattle—may be taken up by plants grown on the soil and injure cattle.

Various poisonous animals, especially the rattlesnakes in our state. Treatment of the bite, extermination of the snake, etc., furnish a field of investigation.

In physics—not peculiar to South Dakota but an important problem—perfection of X-ray tubes for therapeutic use.

The study of nuclear physics should furnish problems for investigation in our institutions.

The study of cosmic rays—these can be studied to advantage in the stratosphere flights; for which our state has been found to be the best adapted of any of the union.

Our meteorology should especially be investigated—where do our rains mostly come from, what are the cycles—the whole question should be investigated—a topic of peculiar interest in our somewhat dry climate. Air currents and the like.

In geology—stratigraphy stands first. The geology of any region is somewhat peculiar to itself and many fields are still open to investigators. The location of the strata in South Dakota where artesian water, oil, gas, coal are found is of prime importance.

The presence of rare metals, gold, uranium, lithium, beryl, tungsten should be investigated.

The actual location of definite coal veins, their mapping and analysis of the peculiar coals constitutes another large field of study.

Paleontology—field of microscopic forms is important and has not been worked on much.

In bacteriology—Improvement of the sanitary condition of the water supply and the disposal of sewage—peculiar problems for each city and community.

Survey of the typhoid carriers.

Prevalence of subclinical mastitis in the state.

Survey to determine extent of Botulinum in the state.

Investigate whether or not our wild rodents are infected with plague bacillus.

In botany—physiological study of drouth resistant plants to determine those best suited to the climate.

Study of correlation between physiological variability and morphological variability within plant species to ascertain those most resistant to drouth.

Continued collection of type species of plants and overlapping of species in the state.

Study of the entire matter of the best vegetation and crops for the protection of the soil and the prevention of erosion and the return of Hutton's desert.

In zoology—the Protozoa of South Dakota have not been studied. Parasitic worms, survey and study. Smaller crustacea of the state, important as food for fishes. Continuation of the fishery work—the fish food, best conditions, methods of conservation, increase in number. Fishes are a valuable source of food—also the game fish attract sportsmen, money to the state.

Study of the wild birds—habits, food, conservation and protection of game birds. Protected areas. Is introduction of pheasant, for example, a good thing?

Life histories of insects—continuation of the work so well carried on so far by State College; study of beneficial and harmful insects.

Whole question of the relation of biology to health of the community—study and survey to see if it were not to the best interest of the state to provide for a full four year medical school in South Dakota and thus to provide for the entire training of our physicians in our own state.

With the healthy growth of the past twenty years and the outlook embraced in only these few mere suggestions—you all could supply many more—it would seem that the South Dakota Academy of Science is the one coordinating scientific organization of the state and is fulfilling a rare destiny. Its place is one of great importance, and it remains for us and our successors to press ever onward to uphold the high standards of the achievements of the past.