owing to the effects of the World War, to have required twenty-four years to double.

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The wide scope of chemistry is reflected by the abstracts and their classification in *Chemical Abstracts*. It is surprising how many chemical papers abstracted are found in journals devoted primarily to other sciences. Perhaps three fourths of the papers appearing in the physics journals are found to be of chemical interest. Most of our basic industries are in large part chemical industries, as the contents of the journals devoted to them show.

The more than 2,800 periodicals now systematically examined in the preparation of *Chemical Abstracts* are printed in 31 languages. The English language—English words and sentences again—is the medium for the printing of two fifths of these (18.1 per cent. from the British Empire and 22.2 per cent. from the United States). German periodicals come next with 14.9 per cent., followed by Russian with 7.3 per cent., then French 6.2 per cent., Japanese 5.5 per cent. and Italian 4.8 per cent. Russian and Chinese chemical periodicals have shown the most rapid increase in number during the past five years. Russian papers vary a good deal in value, but some are excellent and improvement is apparent. Will the reading of the Russian language have to be added to the equipment of chemists? Here and there throughout the world, outside the British Empire and the United States, English is now used to a considerable extent in the printing of scientific papers. This fact and the predominant position of English at present in chemical publication encourage the hope, faint though it is, that English may some day gain recognition as the "universal language" of science.

Chemical Abstracts has long striven for completeness. Completeness in an abstract service involves not only the reporting of all publications in its field, but also adequate abstracting of individual papers and thorough indexing. *Chemical Abstracts* publishes nothing that is new and yet endeavors to publish everything that is new in chemistry.

The indexes are regarded as the most important part of an abstract journal. The purpose of an abstract journal is largely defeated if all the information concentrated between its covers is not made quickly and certainly available by a good key, the index. *Chemical Abstracts* is about one third index. This is properly so.

Subject indexing calls for great care in the use of words. Indexes which are mere compilations of words are not subject indexes. There is a wide difference between a true subject index and a word index. Word indexing leads to omissions, scattering and unnecessary entries. Subject indexes, sometimes called analytical indexes, bring like things together no matter what they may be called elsewhere and tie related things together with a thorough system of cross references. Such indexes utilize classification in so far as it is serviceable. Sometimes the effort to break away from word indexing has led to the substitution of classification for subject indexing. Classification is an indexing tool, not the objective; its use can be easily overdone. Scientific literature would be strengthened if more of its indexes were made scientifically. Taking things for granted is again to blame; poor indexes result from an assumption that a knowledge of the subject-matter of a publication is all the equipment needed for indexing. Indexing is an art and science in itself and a good knowledge of nomenclature is needed. Good indexes are likely to be more exact in word usage than are the papers or abstracts indexed.

Those of us responsible for *Chemical Abstracts* believe in the possibilities for its usefulness. This evening's happenings encourage the belief and I am grateful. *Chemical Abstracts* is a living record of the forward march of men who, along with their fellow scientists, are doing more for the world than is any other group. Great men are in these ranks, greater men than the warriors and statesmen or politicians who so often receive acclaim. It is a privilege to be an observer and a recorder of this advance.

Some men with nothing to say say it very well. These writers and their readers accomplish nothing very pleasantly. The scientist has something to say, perhaps more to say than has anyone else. Curiosity, ingenuity and carefully acquired skill continuously carry him into new places and his interest there is in fact instead of favor, truth instead of ideas acquired on the basis of their appeal. The world needs facts and truths. The scientist's fellow workers need his cooperation. This useful citizen, the scientist, extends his usefulness when words and sentences, like test-tubes and tadpoles, are effectively at his command.

OBITUARY

GEORGE E. OSTERHOUT

GEORGE E. OSTERHOUT was one of the twin boys born to George Osterhout, Sr., and Emma (Harding) Osterhout, at Tunkhannock, Pa., on March 31, 1858. In recent years, he had not been physically strong. He succumbed at the age of 79, on April 2, to an attack of influenza when coronary thrombosis set in.

Mr. Osterhout, at the age of 27, went West, pri-

marily in search of health. For fifty-two years he had lived in Windsor, Colo., where he was known as a successful business man, a kindly neighbor, a loyal citizen, a philanthropic Christian, a scientist of more than local renown.

Before he went West he had earned his college degree at Lafayette College, at Easton, Pa., but graduation to him was not a finish: It became truly the commencement of his intellectual life. His library included many of the great books of all times, and was rich in the sciences of botany, zoology and geology, and also in religion and theology. The content of his library is a measure of the man.

He was a member of the Baptist church; studied law following his college days and was admitted to the bar in Pennsylvania; was a fellow and held "life membership" in the American Association for the Advancement of Science. He was a life member on the Board of Trustees of Keystone College, LaPlume, Pa. His Alumni Association kept his name continuously on its governing council.

The lumber business had engaged his attention since 1885, operated at first by himself but later as the "Osterhout and Charles Lumber Company."

The marriage of Mr. Osterhout and Miss Etta Thomas, of Greeley, in 1894 was an auspicious event. They established a home where their many friends found hospitality and good cheer. Both will be remembered for their quiet, generous, unassuming lives and for their unstinted service to the constructive affairs of the community. Mrs. Osterhout has indeed been the "good wife and helpmate in whom a husband may trust and in whose loving counsel he finds inspiration and strength."

Mr. Osterhout's accomplishments in the field of science may only be mentioned now. Suffice it to say that he stood among the foremost of those who are in the field of botany for the sheer love of the work, rather than as a means to a livelihood. In other words, business was his vocation and science his avocation and his special joy.

His collections are noteworthy in several fields, but his botanical collections are singularly fine. Probably among the privately owned and personally acquired and built, his herbarium has no equal in the West. Its value is not primarily a dollar value. There is hidden in it a personality. A lifetime of quiet enjoyment has gone into the making. The thought and ideals of the owner, as well as his sentiment and love for nature in all her moods is woven into it.

Those who knew him intimately will not forget his droll humor, his integrity and sincerity, coupled with modesty, humility and gentleness. The extent of his generosity will never be known, for his many benefactions were not heralded for his glorification nor to the embarrassment of those who were helped.

His annual field trips had become to him an *event* which, as a source of happiness, was equalled only by the subsequent hours and days spent in his herbarium-room studying the collections he had secured.

The *Greeley Tribune* in an editorial appreciation of him said: "Leisure time was never a problem to Mr. Osterhout. He has shown to others who dread compulsory retirement at 60 or 65 that their scientific achievements may be geared into public education if they possess aspiring zeal to vitalize the knowledge of the little world about them. School and college may enrich their courses through the results achieved by lay adult amateurs who are willing to share with others the riches they uncover."

The following summary of his papers is brief but it shows the extent of his work. A notable testimony of the esteem of his fellow workers is given by the many new species named in his honor. The list of papers is too long for the complete enumeration of the titles. He began publishing in 1898 and his last paper appeared in 1936. Suffice it to say, there appeared in *Bulletin of the Torrey Botanical Club,* 17 titles; in *Torreya,* 8 titles; in *The Plant World,* 3 titles; in *Muhlenbergia,* 12 titles. The total number of new species and new combinations proposed and published by him is seventy-one.

AVEN NELSON

RECENT DEATHS

DR. CHARLES HERBERT LAWALL, dean of pharmacy at the Philadelphia College of Pharmacy and Science, died on December 7 at the age of sixty-six years.

WATSON G. CLARK, for the last several years assistant state director of the Coast and Geodetic Survey for New Jersey, formerly state highway engineer, died on December 7. He was sixty-six years old.

DR. ARTHUR DAVENPORT BLACK, dean of the Northwestern University Dental School since 1917, died on December 7. He was sixty-seven years old.

WILLIAM COOMBS BAKER, since 1920 professor of physics at Queen's University, Kingston, Ontario, with which he had been connected since 1895, died on December 4 at the age of sixty-six years.

DR. GEORGE ALBERT BOULENGER, since 1923 director of the aquarium of the Zoological Society, London, formerly chief of the department of reptiles, batrachians and fishes at the British Museum (Natural History), died on November 23 at the age of seventy-nine years.