struction have recently been let by Henry J. Southmayd, director of the fund's Division of Rural Hospitals. The second hospital unit will also be in the south, although its exact location has not as yet been chosen. In planning the third hospital, correspondence is being conducted with many cities and towns in the north and northwest. When applications are approved the fund will give two thirds of the cost of construction and equipment, while the community gives one third and the cost of upkeep. The Commonwealth Fund, of which Edward S. Harkness is president and Barry C. Smith general director, was chartered in 1918. In addition to her initial gift at that time, Mrs. Harkness made subsequent donations increasing the capital to $38,000,000. Child welfare and education work have been the main aims of the fund, which last year established twenty annual fellowships for British students in American universities.

Industrial and Engineering Chemistry states that in accordance with the regulations of the "van't Hoff Fund," founded June 28, 1913, the Royal Academy of Sciences which has supervision of the fund is preparing to give the annual grants to selected investigators in the field of pure and applied chemistry, who will have applied for such grants before November 1, 1926. The committee charged with considering the applications and awarding the grants consists of A. F. Holleman, president; F. M. Jaeger, A. Smits and J. P. Wibaut, secretary. This committee may appoint other members for one year only, to cooperate in judging the applications made. The names of persons to whom a grant is allowed will be published. The grantees are requested to send to the committee copies of papers relating to the results of their work, but they are at liberty to choose the manner of publication, as well as the journal in which they wish to publish their results, as long as they mention the fact that the research was made with an endowment from the "Van't Hoff Fund." The amount available for 1927 is about 1200 Dutch guilders. Applications should be sent by registered mail to Het Bestuur der Koninklijke Akademie van Wetenschappen, bestemd voor de Commissie van het "Van't Hoff-founds," Trippenhuis, Kloveniersburgwal, Amsterdam, with a detailed account of the proposed use of the grant, and of the reasons on which the candidates ground their claim. They must be received before November 1, 1927.

THE Hague correspondent of the London *Times* writes in regard to the experiments of Professor Keesom, of the University of Leyden, who has succeeded in solidifying helium, as follows: "Many attempts had been made before by Professor Kamerlingh Onnes. With the help of very strong pumps a temperature of less than nine-tenths of a degree above absolute zero was obtained, but at this temperature the helium remained in a liquid state. On June 25, however, by subjecting the helium to a pressure of 150 atmospheres and a temperature of 4¼ degrees absolute, the helium became fixed. A later experiment with 1½ degrees absolute and a pressure of 28 atmospheres was successful. The first experiment was accomplished in a steel tube, the second in a glass tube. The test of solidification was arranged in the following way: In the glass tube containing a few cubic centimeters of liquid helium, a piece of steel was placed. As long as the helium remained liquid, the steel could be moved by means of a magnet. As soon as the helium had become solidified the steel was frozen in and immovable."

UNIVERSITY AND EDUCATIONAL NOTES

AN agreement has been signed for the sale of the *West Australian* and its allied weekly, the *Western Mail*, to London investors. Perth University and the Anglican Church will benefit by three quarters and one quarter, respectively, of the proceeds, which are estimated at £600,000, under the terms of the will of the late owner, Mr. Hackett. The money must be used to build a memorial hall and an Anglican college, and to assist to maintain deserving university students.

C. R. HOOVER, senior professor of chemistry, has been elected vice-president of Wesleyan University, Middletown, Conn. G. Albert Hill is now acting as chairman of the department of chemistry.

DR. MERIT SCOTT, who for the past five years has been a member of the physics staff at Cornell University, has accepted the position of assistant professor of physics at Union College, Schenectady, N. Y.

AT Western Reserve University, Dr. George B. Ray has been promoted to an assistant professorship of physiology, and Dr. S. W. Chase to an assistant professorship of histology and embryology.

RALPH E. GRIM, graduate student in geology at Yale University, has been appointed assistant professor of geology at the University of Mississippi. He will also be assistant geologist on the Mississippi Geological Survey.

DR. R. J. RUSSELL, of the University of California, will go to Texas Technological College as associate professor of geology.

N. T. BOURKE, M.E. (Purdue), has gone from the University of Arkansas to the University of North Dakota as professor of mechanical engineering to succeed George B. Wharen, who died in May.

DR. ROGER C. SMITH, associate professor of entomology, and Dr. Ralph L. Parker, assistant professor

of entomology, at the Kansas State Agricultural College, have been promoted, respectively, to a professorship and associate professorship in the same institution. Dr. R. H. Painter, who recently received his doctorate from Ohio State University, has been appointed assistant professor. During the summer he was engaged in entomological work in Spanish Honduras.

DISCUSSION

HOOKE'S LAW

IT is distressing to observe the unwarranted reverence for Hooke's law so very generally shown by writers of text-books on physics for schools and colleges. This law dates back to 1676 and in the words "ut tensio sic vis" teaches the proportionality between stress and elastic strain. For example, an excellent English text-book, much used in our colleges and universities, states, "So long as the weight used to stretch the wire is not so great as to produce a permanent elongation of the wire, it is found that the elongation is proportional to the stretching force. This is known as Hooke's law." Two American text-books, intended for college use and published about a year ago, teach the same error. Still another American text-book, excellent and very widely used, devotes a third of a page to actual experimental data and states that the table "shows that the elongation is closely proportional to the stretching force." An inspection of these data, however, shows only a rough proportionality. A certain well-known scientific company is doing harm to young experimenters all over the country by publishing an elaborate instruction sheet which conveys the impression that accurate measurements should show strict proportionality between strain and stress. Moreover, I find that some of the writers in the *Philosophical Magazine* have the same mistaken impression.

In view of facts such as the above—and many more might be cited—I feel that a public service will be rendered if I exhume a prehistoric article of mine and make known the truth. This article was published in 1891 in Volume 44 of Wiedemann's Annalen under the title "Ueber das Gesetz der elastischen Dehnung" and a translation appeared in the January, 1892, number of the *American Journal of Science*. The wires investigated were of silver, copper, steel and brass, and they all *without a single exception* showed that the elastic lengthening increases more rapidly than the stretching force. The results with a brass wire are given below, but in order to show more strikingly the inaccuracy of Hooke's law I have made certain additions to the table as given in the published article.

BRASS WIRE

Mean of 20 series of measurements		
Added wt. in grams	Lengthening in mm	Successive increments
200	7.111	7.111
400	14.272	7.161
600	21.488	7.216
800	28.770	7.282
1000	36.119	7.349
1200	43.554	7.435
1400	51.076	7.522
1600	58.679	7.603
1800	66.341	7.662

The elastic lengthenings x may be calculated from the added weights p in kg using the equation

$$x = 35.4385p + .5353p^2 + .1487p^3$$

and the discrepancy between observed and calculated values averages .0015 mm.

The probable error of the lengthening 43.554 mm was .0024 mm, and this is indicative of the accuracy of all the measurements. Thus it is clear from the above table that there is *without a single exception* an increase in the successive increments, and moreover the differences of the successive increments, .050 .055 .066 .067 .086 .087 .081 .059, indicate an increase nearly to the end. The diameter of the wire was .282 mm, the length 22700 mm and the initial load 665 grams.

To those curious to know the behavior of a wire unstrained by an initial load the following figures are interesting. Obviously a wire is strained somewhat by its own weight, and a small initial load is absolutely necessary in order to make the wire straight.

COPPER WIRE

Mean of 16 series of measurements		
Added wt. in grams	Lengthening in mm	Successive increments
200	5.531	5.531
400	11.084	5.553
600	16.671	5.587
800	22.298	5.627
1000	27.949	5.651
1200	33.646	5.697

In the following measurements made with a copper wire of nearly the same length and diameter, the initial load (weight of pan, damper and half the weight of the wire) was only 192 grams.

Here again is an unbroken increase in the successive increments, and in their differences is an increase followed by a decrease.