moon is, we should then have to measure the chord connecting the two places—a straight line.

The gist of Professor Seares's remarks then seems to be that by discarding the straight line and making our measurements in space along curved lines we can "win the game with a score we could not otherwise attain." Curved lines, however, imply the existence of straight lines, and some of us still believe the game can be won by straight measurements and straight thinking.

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CONICAL SNOWFLAKES

WITHIN the writer's observation, at least, a very unusual snowfall occurred in Ann Arbor on Sunday afternoon, April 26, 1931; during the afternoon three main falls occurred, each lasting for only a short while, and each yielding but little actual precipitation.

The crystal formation was that of a solid cone with a round base. The side of the cone made an angle of about 30 degrees with the axis. The round base was part of a spherical surface. The shape was exactly like that of a conical section of a sphere.

As nearly as the eye could see into the formation of a snowdrop, the whole structure seemed to be made up of conical needles, packed together, with the upper ends forming the pointed tip of the cone, and the larger lower ends forming the rounded base.

The density was very high; a handful of snow, slightly compressed, immediately formed soft ice. The ratio of snow volume to volume when compressed to ice without air included would hardly have been higher than four to one.

Hundreds if not thousands of individual snowdrops came under observation on a window sill; irrespective of size, from tiniest to largest, the crystals were of the same form. In spite of landing on the stone sill at high speed in the high wind, nearly all crystals were tough enough to retain their shape; such few observed crystals as were shapeless were almost certainly shapeless only due to damage from impact.

The shape of the snowdrops was the same in all three falls, although the three falls occurred from a half hour to an hour apart. Many large crystals fell; one of the largest, by actual measurement, was three eighths of an inch across the base.

The day was very gusty, with rapid changes in wind velocity. Wind velocity at times during the snowfall became very high. There were rapid alternations between brilliant sunshine and considerable cloudiness. The temperature was mild. Most of the snow would melt in a few minutes, although an inch or two that became piled on the running board of a car was there the next morning, partly melted, but with somewhat globular outlines still visible.

Observation of the shape of crystals was checked by Professor William Stout.

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THE LABRADOR CURRENT AND ICEBERGS

I NOTICE on page 12 of the May 15th number of *Science Supplement* an article on "The Labrador Current and Icebergs."

In explaining this phenomenon it might be well to consult the Weather Bureau records at Key West and Havana with respect to the direction and velocity of the wind this winter as compared with normal winters.

It is my observation in the months of November, January and February that the usual northeast winds, referred to there as the "trade winds," were absent a great deal of the time and were replaced by northwest winds of very considerable velocity.

A northeast wind blowing counter current to the flow of the Gulf Stream at the south end of Florida would tend to slow down the Gulf Stream. If this atmospheric resistance to flow was eliminated one would expect the Gulf Stream to speed up and carry more heat to the north.

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THE IMMEDIATE PROBLEM FOR BIOLOGICAL ABSTRACTS

A VICIOUS circle exists in the affairs of *Biological Abstracts*. This publication finds difficulty in obtaining a maximum number of subscribers because it is incomplete and indices have been delayed; it can not become complete and indices be published without the financial support available directly and indirectly from a maximum number of subscribers.

Under the general conditions existing in the biological sciences, we can hope to pay by subscriptions only for printing and similar costs. Editorial costs must be met by some form of subsidy. These editorial costs are more than twice those for printing. Subscribers pay less than one dollar for each two dollars paid from other sources. The income from subscriptions is an important item in itself, but it is doubly important because it is the concrete evidence of the extent to which individual biologists are contributing their share to the undertaking. Nothing is so vital to the obtaining of permanent endowment for the editorial work of the *Abstracts* as a substantial increase in the subscription lists within the next twelve months. There are now three thousand subscribers. There should be five thousand.

Subscriptions are also important at the present time because printing costs must be paid by subscrip-

tions. The 50,000 abstracts in hand editorially for the year 1931 and the indices in arrears can not all be published without more money from this source. Every dollar received from additional subscriptions will count toward current publication as well as in support of the solicitation of permanent endowment for editorial costs.

A campaign of publicity and of advertising for subscriptions is being initiated, but thirty societies in a union present a difficult problem as compared with the situation of the chemists with a single society. The Union of American Biological Societies has undertaken to support this campaign as the most effective means of increasing the subscription list. Thus, editorial costs are paid by subsidy, printing by subscriptions, and selling costs in the present emergency will be paid by the union. The funds of the union are derived from contributions by member societies. These funds must be voted, and most of the societies do not have business or executive committee meetings until next December. Hence we are especially in need of every dollar that can be obtained within the next six months. The original financing of the union came in part by contributions of from one to ten dollars from individual biologists. It is thought that many will wish to contribute in the present emergency. Checks should be sent to A. L. Quaintance, treasurer, Silver Spring, Maryland. The officers of the union also urge every biologist to use his best efforts in securing additional individual subscriptions at $9.00 and institutional subscriptions at $15.00.

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REPORTS

COMMITTEE ON EFFECTS OF RADIATION UPON ORGANISMS OF THE NATIONAL RESEARCH COUNCIL

THE organization and initial activities of this committee were reported in SCIENCE, January 4, 1929. A statement of its policies and of assistance rendered to investigators during the first two fiscal years of its existence, 1929–30 and 1930–31, may now be recorded.

The general policies announced in the report above cited have been in practice with modification of details as experience has shown desirable. The funds are handled by the methods current with the Research Council. Investigators have been informed and applications invited by periodic advertisement in SCIENCE, as with the National Research Council Fellowships and by other justifiable publicity. Reports of progress and copies of published papers are submitted annually for current information of the committee by each investigator assisted. On March 1, 1931, there were 27 titles thus recorded.

Although dealing with the effects of physical agencies, the committee has been composed of individuals who are primarily biologists. The advice of physicists has been sought informally as seemed desirable. For purposes of cooperation, the addition of a physicist recommended by the Division of Physical Sciences of the Research Council has been arranged. By this means we shall obtain advice that is often needed and also cordial support from another division of the council.

Donations of money totalling $25,000 per year by the Commonwealth Fund and the General Education Board and gifts of money and apparatus were mentioned in the earlier statement. Experience shows that for legal and practical reasons large sums of money can not be expected from manufacturing organizations for work of this character. The current industrial depression is also a deterrent factor. Nevertheless, the committee has received $6,300 from this source. It is another matter with apparatus. This has been freely donated, and there is a list of over twenty-five cooperating industrial organizations. These contributions of apparatus are received in various ways now that the system is well in action. Under one arrangement the donation is outright and title to the apparatus rests with the Research Council. Assignment is made year by year with the expectation that title will ultimately be transferred to some institution where the use will be permanent and effective. In other cases the manufacturers loan directly to the investigator upon recommendation of the committee for as long a period as may be required. This method is simpler in administration since it does not involve the Research Council in matters of title and consequent responsibility. Or the manufacturer may donate to the institution in which the investigator is located. In practice it has been found impossible to keep an exact account of the apparatus made available under these diverse conditions, but it represents a large sum and there is reason to believe that support of this nature will be forthcoming throughout the period of the committee's activities. In addition to assignment of apparatus there is often opportunity to introduce investigators to the research laboratories