the absence of organic matter, more nearly so than with phosphorus.

In this connection it is of interest that the successful production of bananas is closely associated with available supply of phosphorus. Bennett's suggestion of pH is only correct in as far as the desirable pH is incidental to a high available supply of phosphorus.

The problem of the South and the Tropics of maintaining the fertility of their soils is one of maintaining a high amount of available phosphorus. The incorporation of organic matter is highly important with a judicious application of mineral plant foods. In other words, the partial and sometimes complete failure of fertilizer, particularly superphosphate, is usually due to lack of organic matter in the soil.

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INSECTS AS POLLEN CARRIERS

IS it an instance of inheritance of acquired characters that we descendants of thrifty Yankee ancestors insist on finding "uses" for various objects in the universe? Nature, viewed by man, is the primary waster, in rather sharp contrast to the exactness with which her work is done. Dr. Frank Lutz, in a recent *Science Service* radio talk, "In Defense of Insects," deplores the method, wasteful and inefficient, of the production of vast quantities of pollen which is never used by anemophilous plants, only an occasional pollen grain finding a logical home. Dr. Lutz seeks to show the usefulness of insects in the economy of man, citing, in his argument, various plants, edible and otherwise serviceable, which depend for their genetic continuity upon insects that bring about cross pollination. Dr. Lutz, no doubt, knows his insects but perhaps he gives them somewhat too much credit for their beneficent attitude toward man so far as cross pollination is concerned. All important vegetable garden plants except corn, he tells us, come, directly or indirectly, from seeds resulting from insect pollination. This includes such plants as lettuce, the tomato, pepper, peas and beans, all of which are known to be self-pollinated, cross pollination by insects being the exception. The three textiles, linen, cotton and wool, are claimed by him as due to insects, the latter only indirectly. As a matter of fact, both the cotton and the flax plant are pollinated only occasionally by insects, depending mainly on their own resources and evidently well able to get along without insects at the present time. As for wool, practical sheepmen are *not* seriously concerned about clover in their pastures and no doubt many of the native legumes are self-fertilized. An important clover in New Zealand, *T. subterraneum,* is non-seed-bearing, while common red clover is not one of the important legumes in the lush New Zealand pastures. Tobacco is another plant specifically mentioned by Dr. Lutz as insect-pollinated, but here again this plant, if it ever depended on insects, has learned to "roll its own"; pollen carrying insects are less its concern than are the aphids which carry its mosaic. Coffee, tea and cocoa plants may be insect-pollinated but judging by the above examples, which have really turned out to be "horrible," perhaps the chances are only even. Dr. Lutz scarcely mentions the part insects might have had in the phylogeny of the higher plants, but his statement that there was no extensive growth of land plants before insects became well established means nothing, except to a teleologist, for the primitive plants of the early land floras, which built the coal measures, could not have depended upon insects for progeny. Perhaps pollen-carrying insects have been important to plants mainly from an evolutionary standpoint and only incidentally do they remain important as accessory to seed production. Plant evolution would have proceeded without insects, but quite certainly the plant world is richer and more complex because of insect cooperation.

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AWARDS FOR SCIENTIFIC RESEARCH BY THE CONGRESS

AT the annual meeting of the Illinois State Academy of Science in Peoria, Ill., on May 8, the president made this statement:

I hope that the time will come when our government will establish not merely medal awards but substantial money prizes to be given annually to Americans who have made the most noteworthy and valuable research contributions and that present limitations on the time of ardent research workers will be removed.

I have reason to believe that a bill establishing such awards will be introduced by an Illinois member at the next session of Congress, and I trust that this organization will be the first to approve it, not from any selfish motive but as a grateful recognition of a great service rendered.

Later in the session, the following resolution was reported by the committee:

> Realizing the large value and great importance of research along many lines and the benefits accruing to the people from inventions, explorations and discoveries in science, often the result of patient, persistent and painstaking endeavor,
>
> *Resolved,* that the Illinois State Academy of Science, while fully appreciating the recognition accorded such work, would respectfully recommend that Congress add

to this the establishment of financial awards for the most noteworthy and valuable inventions and discoveries in the several branches of science, to be bestowed under such conditions as Congress may direct."

This resolution was unanimously approved.

As a matter of course the present situation with reference to such a measure is purely tentative, until details, if it is thought to be desirable, are worked out.

I have had some correspondence the last three or four months with Colonel B. M. Chiperfield, congressman of the fifteenth Illinois district, on the subject and he wrote that he was favorably impressed. Since the meeting at Peoria he was written as follows:

I think that the measure will require a great deal of careful thought and collaboration on the part of those who are more familiar with the subject than myself. I stand ready to introduce such a measure at any time but I do not feel sufficiently familiar to draft it without considerable assistance.

Of course I do not mean the mere mechanical work of drafting the bill, which is easy enough, but as to what awards should be made, by whom, and for what I shall need advice and direction.

With all that Colonel Chiperfield here says I fully agree. My idea in referring to it at all at the state meeting was based on the belief that ultimately something might be accomplished and that, if the matter were introduced at the next session and referred to a committee of Congress to act with a committee representing the American Association for the Advancement of Science, and the several other organizations of national scope, such as the National Research Council and the National Academy of Sciences, and to prepare the main features of a bill enumerating the number and scope of the awards and the lines for which they were to be made, the material would be in such shape as Colonel Chiperfield suggests.

In the course of a year's study of the development along various lines of research, the prizes bestowed, the fellowships awarded, and medals given, I was impressed with the fact that the most notable of all is a foreign prize, the Nobel, and that the winning of this is a world distinction. There are many generous prizes in our own country, it is true, but they are established largely by individuals, associations and institutions and do not constitute a generous government recognition of a public service. It is true that medals are given and these of course are to be esteemed as tokens of honor and recognition.

I can imagine, however, what an award like the Nobel to the late Albert A. Michelson meant in the prosecution of such a work as he was attempting, if his own means and the limitation on his time would not otherwise have permitted it. It is, indeed, fortunate that we have institutions and museums that promote the work of research, invention, and exploration, and also that we have scientific publications that advance this cause.

But I think also of those with cramped means and limited time, who are engaged in invention, exploration, architecture, physics, astronomy, electricity, chemistry, geology, botany, medicine and surgery, and perhaps other lines of basic research, and who are struggling under adverse conditions to give the people the finished product of their thought and study, whom a government award or endowment or pension might greatly aid and encourage.

Dr. John C. Hessler, a former president of the Illinois State Academy of Science, has suggested that if such a bill is framed it might well include a clause that empowers the government to receive gifts toward such an endowment fund from which awards could be made, and it is possible that there may be many, who, desiring to emulate the example of the founder of the Smithsonian Institution, would gladly be contributors. Such contributors could be added to any appropriation that Congress might make.

But at present it seems to me that Congress at least could, as an initial step, be solicited to appoint a committee to act, as indicated, with a committee of leading scientists.

Personally I believe that such awards in research would inspire and stimulate and result in great good. It is farthest removed from my thought to commercialize science, but rather the idea is to give the best, the freest, the fullest opportunity to the ones most competent to give the world something worth while.

FRED R. JELLIFF,
Past President
ILLINOIS STATE ACADEMY OF SCIENCE

NEW TECHNICAL WORDS

IN the issue of SCIENCE for May 22 (73: 565–566) Messrs. Tester and Bay describe their ingenious instrument, "The shapometer: A device for measuring the shapes of pebbles."

As "shapometer" is an obvious hybrid, interdicted by good usage in fashioning word novelties, and inasmuch as we already have in use the words morphometry and morphometrical, it is hoped that the gentlemen referred to may be induced to adopt the name morphometer for their device (from Greek μορφή, form or shape, + μέτρον, measure). If that term be deemed specifically insufficient, the more definite word psephometer (from Greek ψῆφος, a pebble, + μέτρον, measure) might be suggested.

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