Letters to the Editor

Growth of Trophoblast in the Anterior Chamber of the Eye of the Rabbit

Criteria which have been established for characterizing malignant tissue by means of the technique of transplanting tissue fragments into the anterior chamber of the eye of rabbits appear to be fulfilled by trophoblastic tissue. Trophoblast obtained from human placentae of about five-month pregnancies grows rapidly in the anterior chamber and infiltrates the eye. These results confirm similar work performed by Kido in 1937 (I. Kido. *Centralbl. Gynaek.*, 1937, **61**, 1551; *Ber. wiss. Biol.* (Maly's), 1937, **44**, 493). Experimental details will be published elsewhere.

CHARLES GURCHOT and ERNEST T. KREBS, JR.
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The Pelletier and Caventou Monument in Paris

Among the bronze monuments melted down for conversion into weapons in the countries overrun and occupied by the Nazis in World War II was the statue of the pharmacists, Pelletier and Caventou, the discoverers of quinine, erected in Paris in 1900 and paid for by contributions from all parts of the world.

It would be an excellent manifestation of good will if American scientists, if the American people, would replace the destroyed statue by another and more beautiful one. The new monument would stand not only as a renewed tribute to a scientific deed of highest value to the human race but simultaneously as a symbol of the victory of humanity over brutality.

If this suggestion meets with general approval, a committee should be formed to deal with the questions concerned (collection of necessary funds, communication with the Société de Pharmacie de Paris, the American and French authorities, etc.).

The undersigned would be only too glad to aid in the realization of this project to the best of his ability.

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Some X-Ray Crystallographic Data on DDT

In the course of an X-ray and optic study of analogues of DDT we have had occasion to include DDT itself. Our results do not agree completely with those reported previously by G. L. Clark and F. W. Cagle, Jr., in a note to this journal (*Science*, 1945, **101**, 465–466). DDT crystallizes in the orthorhombic system, and our lattice dimensions agree fairly well with those reported. Beyond this point no agreement exists.

The material used was a highly purified sample of DDT obtained through repeated recrystallizations from ethanol, having a melting point of 108.5–109° C. The crystals were long tabular needles. An optic study showed the β vibration direction to be along the needle length. DDT is a positive biaxial crystal with γ normal to the main face. These data agree with the optic study made by E. L. Gooden (*J. Amer. chem. Soc.*, 1945, **67**, 1616–1617).

X-ray data were obtained from Weissenberg diagrams about all three crystallographic axes. The unit cell dimensions are:

	OUR DATA	CLARK, *et al.*
	$a = 19.14 \pm .08$ A. U.	$a = 19.25$
	$b = 9.96 \pm .04$	$b = 10.04$
(needle axis)	$c = 7.85 \pm .04$	$c = 7.73$

The space group is P_{bc} or P_{bcm} and not P_{222_1}, as previously reported by Clark and Cagle. The density was measured by suspending the crystals in an aqueous KI solution of the same density, which was 1.556. There are four molecules per unit cell. The X-ray molecular weight is 353 as compared to 354.5 computed for $C_{14}H_9Cl_5$.

Powder diagrams check with the data published in *Science*, but we have been unable to confirm the indices assigned to many of the lines.

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The Best Defense

The challenge hurled at civilization by the atomic bomb not only provides motivation for men of different nations to live in peace, but also signalizes a procedure by which they may learn how to do this. For if, by employing the scientific method, men can come to understand and control the atom, there is reasonable likelihood that they can in the same way learn to understand and control human group behavior.

It is most unfortunate that science is being considered in the current press as merely the body of knowledge mankind has amassed about certain phenomena. During the Middle Ages an equally tremendous body of knowledge was accumulated which was in no way science. The important thing about science is the method of observing, classifying, and generalizing so that the body of knowledge is verifiable. This method has proved more useful in each field in which it has been exploited than any other method employed in that field.

Human behavior, like atomic behavior, is a natural phenomenon, capable of observation, classification, and generalization according to the same rules by which science has been so successful wherever it has been applied to natural phenomena. It would seem evident, therefore, that *social science*, in the strictest sense, offers a defense against further use of the atomic bomb with a greater probability of success than any other method now known.

Three or four years ago when warring peoples desperately felt the need of victory, it was not thought for a moment that this motivation alone would produce victory.

Techniques were required. It is equally absurd now, when peace is such a desperate necessity, to suggest, as men of intelligence are doing, that *the motivation provided by the fear of the atomic bomb will alone keep the peace* without the aid of techniques. It is quite within reasonable probability that social science can provide these techniques if it is given anything like the amount of support afforded to physical science in developing the atomic bomb.

The notable acceleration since 1930 in the gains made by social scientists, and the presence in the world of perhaps a few dozen of these men who are highly skilled in the techniques of their discipline, augurs well for a trial of the scientific method in discovering ways of maintaining peace. It is not as if a start had to be made from total ignorance. There is already at hand a very considerable body of knowledge as well as steadily increasing excellence in the means of enlarging it.

But while the social scientists seemingly must be responsible for discovering a means of preventing war, if it is to be discovered, the physical, biological, and medical scientists are at present possessed of nearly all the tremendous prestige that goes with the word *science*. Up to now no authoritative voice of any considerable group of physical, biological, or medical scientists has been raised in support of their co-workers in social science—of those who share their method of observing, classifying, and generalizing natural phenomena.

These more famed colleagues of the social scientist are probably not versed in his recent accomplishments; perhaps they are not fully aware that he uses the same method of science that they use; more than likely they have formed their opinions after listening to quacks posing as social scientists.

Is it not time for physical, biological, and medical scientists, whose prestige is so great, to investigate the work of social scientists thoroughly enough to ascertain whether it is, in truth, science? And if they find that it is, can they not do more toward keeping the peace than merely informing persons in authority, and others, of the terrible consequences of the atomic bomb in case of a war? Can they not unite and give their great influence to support the work of social scientists toward finding techniques by which the peace will be maintained?

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On Opening "Frozen" Vacuum Desiccators

I have read with interest the method for opening "frozen" desiccators described by J. D. Reid (*Science*, 1945, 102, 483), which consists of driving a single-edged razor blade between the top and body of the desiccator. I have used this method myself successfully, but have always felt lucky that I did not chip or crack the top of the desiccator, since desiccator waxes of thick consistency are sometimes so tenacious that removing the lid becomes a major operation.

The method I have come to adopt is absurdly simple but always effective, and in the event that someone may not yet have discovered the method for himself I shall describe it here. The desiccator is held under a hot-water faucet, the water being allowed to flow over the edge of the lid. As soon as it becomes warm, the wax softens, and the lid is removed with ease. Only a few seconds are required to perform the entire operation.

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Information Please

In the early 1890's a one-room country school in Indiana was attended by two boys—classmates, both of whom became starred scientists. They have often wondered whether any other one-room country school in the United States has ever numbered two starred scientists among its alumni. The authors of this note, who were the boys referred to above, hope that any reader of *Science* who knows of a parallel or similar case will present the facts in a communication to this magazine. The likelihood of an occurrence of this kind by pure chance is not known but must be very small. If, as might reasonably be estimated, there is not more than one chance in a thousand that such a school has enrolled even one starred scientist, the likelihood of its enrolling two would be only one in a million on the basis of chance alone. In the instance here reported the laws of chance may have been upset by the fact that the teacher of the boys was exceptionally capable and inspiring.

It is suggested that replies to this appeal include instances of other comparable recognition—membership in the National Academy of Sciences, listing in *Who's Who*, etc.—and that mention be made of extrachance factors that may have been involved.

B. and T.

The Rumbling of Thunder

Arthur Taber Jones (*Science*, 1945, 102, 407) calls attention to an especially continuous and pronounced case of the rumbling of thunder on the morning of 30 August 1945, at Northampton, Massachusetts, and cites W. J. Humphreys, who, in *Physics of the air*, lists four causes for the rumbling of thunder: (a) inequalities in the distance from the observer to various points of the path of the lightning; (b) crookedness of the path; (c) succession of discharges; and (d) reflection.

There is no doubt that all these factors enter into the cause of the rumbling of thunder; but there occurs to the writer another cause which he believes to be even more potent than any of the four named above. As is well known, thunder is caused by the sudden change in temperature of the air through which electricity is passing during a lightning flash. In order to understand clearly the operations of the factor about to be described, let it be supposed that lightning flashes between two clouds so situated that the electric discharge comes directly toward the observer. When the discharge starts from the cloud of lower potential, we may assume the number of elec-