a wave-length of 1·54 A., which, being less penetrating, might be expected to produce more drastic effects. The radiation was collimated by a narrow slit and allowed to strike selected somites of the animals placed 1 inch from the focal spot of the X-ray tube.

It was expected that the irradiated somites would be injured or killed, so that the animals would break into two parts, each of which would live just as though the animals had been cut into two parts with a scalpel. Actually it was found that irradiation of the first three to five somites resulted in the formation of protuberances of various sizes. These were either reabsorbed or the anterior section disintegrated. When the heart region was irradiated, no injuries were observed in a majority of the animals. Irradiation of the somites approximately in the middle of the animal caused it to break at the site of irradiation into two parts, but in more than 70 per cent of the cases the posterior section died, whereas had the animal been cut into two, both sections would have survived in almost every case.

The time of irradiation was 3 minutes in each set of irradiations. Histological studies are to be made of the injured sections, and further irradiation experiments are planned. We expect to publish a fuller treatment of the data at an early date.

H. Kersten.
H. Branson.

Department of Physics,
University of Cincinnati,
Cincinnati, Ohio.
Jan. 10.

Band Spectrum of Indium Hydride

In connexion with investigations now in progress on some hydrides in the third group in the periodic system, I have studied the spectrum of indium hydride. The bands were obtained in the emission from an arc burning between electrodes of indium and carbon in hydrogen at high pressure, using the same conditions as in a previous investigation of the thallium hydride[1].

The spectrum of InH was photographed between 2200–8500 A. (dispersion 1·9 A./mm.). In the range between 5600–8500 A. several bands were observed, which probably belong to InH. Three of these bands with $\nu_0 = 16{,}904{\cdot}9$, $17{,}574{\cdot}1$ and $16{,}148{\cdot}2$ cm.$^{-1}$ were analysed.

The band, $\nu_0 = 16{,}904{\cdot}9$, consists of single *P*-, *Q*- and *R*-branches, corresponding to a $^1\Pi \rightarrow {}^1\Sigma$ transition. This band is degraded toward the violet, but at high *J*-values all three branches form 'secondary' heads. In the *Q*-branch all lines up to $J = 31$ are intense. $Q(32)$, however, does not appear, even if the pressure in the arc is increased to ten atmospheres, which indicates a pronounced predissociation. In the secondary head of the *P*-branch, above $P(20)$, the lines are too crowded to be distinguished, but the *R*-branch can be followed steadily up to $R(33)$. The intensity distribution in the *R*-branch is perfectly normal, and no sudden interruption of the branch can be observed. All this indicates a case of predissociation similar to that earlier known in the spectrum of MgH.

The two other bands with $\nu_0 = 17{,}574{\cdot}1$ and $16{,}148{\cdot}2$ consist of single *P*- and *R*-branches, degraded to the red, and correspond to a $^1\Sigma^* \rightarrow {}^1\Sigma$ system with (0,0) and (0,1) transitions, the lower state of (0,0) being identical with that of $^1\Pi \rightarrow {}^1\Sigma$. The following rotational constants have been calculated:

$$^1\Sigma\ ,\quad B_0 = 4{\cdot}921,\quad D_0 = 2{\cdot}24 \times 10^{-4}.$$
$$^1\Pi\ ,\quad B_0 = 5{\cdot}266,\quad D_0 = 3{\cdot}28 \times 10^{-4}.$$
$$^1\Sigma^*,\quad B_0 = 4{\cdot}883,\quad D_0 = 3{\cdot}77 \times 10^{-4}.$$

Besides these some bands appear in the red and infrared. The more intense heads can be classified in the following two groups:

Band heads, degraded to the	
violet	red
16,906 cm.$^{-1}$	17,724 cm.$^{-1}$
16,828	16,788
16,163	16,467
	16,366
	15,981
	15,506
	14,227

The search for the still unknown spectrum of gallium hydride is now in progress.

Further details concerning the band spectrum of indium hydride will be published later.

Birger Grundström.

Department of Physics,
University of Stockholm.
Feb. 21.

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[1] Grundström, B., Nature, **140**, 365 (Aug. 28, 1937); Grundsström, B., and Valberg, P., *Z. Phys.*, **108**, 326 (1938).

Science and the Unobservable

In his Royal Institution discourse, published in a Supplement to Nature of January 1, Prof. H. Dingle has made an attempt to show that, if we regard the recent trend of physics (expressed by the principle: "nothing which is logically or physically unobservable is significant") as legitimate, we are idealists. This is no new conclusion and the very thing to which M. Maritain[1] and R. J. Dingle[2] object.

It seems that Prof. Dingle does not realize exactly for what reasons we can disagree with Einstein when he says that: "The concept [of simultaneity] does not exist for the physicist until he has the possibility of discovering whether or not it is fulfilled in an actual case. . . . As long as this requirement is not satisfied, I allow myself to be deceived as a physicist (and of course the same applies if I am not a physicist), when I imagine that I am able to attach a meaning to the statement of simultaneity".

When we speak as physicists, we consider only phenomena which are observable with physical means. When we speak as non-physicists, we consider, besides physical observation, also other means of apprehension. We can only pretend that the two ways of speaking are the same, if it is proved that we have no other means of apprehension than physical ones, that is, sense-perception. But if we do have such superior faculties, we cannot conclude that our limitations when we are using only a part of our faculties (physical means) are the same as when we are using all our faculties.

In the particular case considered here, the question therefore comes down to this: Can we, by means of our present human faculties, reach the idea of simultaneity without observing it physically?

In order to make it easier to answer this question, let us apply the above-mentioned principle (rejection of physically unobservables) to Prof. Dingle's article. What will be the result? By means of pure sense-