Again, in *Astr. Nach.*, 3463, he gives notice of two new variables—probably of short period—B.D. + 67°·1124 in Draco, and B.D. + 30°·1329 in Gemini, with respective positions: R.A. 19h. 9m. 54s., Decl. + 67° 2′·4, and R.A. 6h. 37m. 50s., Decl. + 30° 25′.

All the positions are given for the epoch 1855.

VARIATIONS IN THE SPECTRUM OF NEBULA IN ORION.—Often has severe criticism put scientific facts on a firmer basis, and such might be said to be the case with Dr. Scheiner's doubts concerning Prof. Campbell's observed variations in the spectrum of different regions in the Orion nebula, made in 1893. To test the accuracy of some specific observations, Prof. Campbell has called in the assistance of three of his colleagues (Prof. Schaeberle amongst them), and, with the aid of the 36-inch refractor and an efficient spectroscope, different regions of the nebula have been examined to observe the behaviour of the three principal nebular lines.

The mode of making the observations was to use a coarse micrometer wire, occulting each of the lines in turn, so as to determine the relative brightness of the remaining two, when all three are observable.

The following are the results, which in the main all the observers are agreed upon:—Central part of nebula (Trapezium region): the three nebular lines all conspicuous, the line λ 5007 being the brightest, whilst the lines λ 4959 and λ 4861 are nearly of the same intensity as each other.

In the region surrounding the star Bond, No. 734, the line λ 4861 was the only one visible, the other two lines having disappeared; whilst in the region south-west of the Trapezium all three are visible, but the line λ 4861 is still the brightest.

No doubt photographs will be secured whilst Orion is well situated, and so further establish these observations made visually.

WINNECKE'S PERIODIC COMET.—One is reminded on reading the life-work of the late Dr. Winnecke, in the last number of NATURE, that had he lived a few weeks longer he would probably have seen another return of the periodic comet which bears his name, for it is due at perihelion on March 20, 1898, but of course will be better situated for observation some time before this. The elements and ephemeris as given by Mr. C. Hillebrand in *Astr. Nach.*, 3447, are as follows:—

Elements.

	26 October. 1897.	15 March, 1898.	
M =	325° 24′ 26″·7	359° 3′ 52″·0	
π =	274 14 33·3	274 14 39·0	1900
Ω =	100 53 34·3	100 53 11·5	1900
i =	16 59 34·4	16 59 33·8	1900
φ =	45 37 35·6	45 37 14·7	
μ =	608″·3483	608″·5559	

Ephemeris.

1897-98.	R.A. h. m. s.	Decl. ° ′	log *r*.	log Δ.	1 : *r*²Δ².
Dec. 21	14 38 14	− 1 6·6	0·19028	0·28225	0·113
25	51 6	2 2·3	17921	26885	127
29	15 4 28	2 58·6	16788	25550	142
Jan. 2	18 24	3 55·3	15629	24228	160
6	32 53	4 52·3	14446	22929	179
10	15 47 58	5 49·3	13242	21659	200
14	16 3 40	6 46·1	12016	20432	224
18	20 0	7 42·1	10773	19259	251
22	36 59	8 37·0	09518	18151	280
26	16 54 36	9 30·3	08256	17122	311
30	17 12 49	10 21·3	06993	16184	344
Feb. 3	17 31 41	− 11 9·0	0·05738	0·15349	0·379

The best time for making a search will be early in the morning, shortly before sunrise, from about now till early in February. The comet is never visible to the naked eye, and will at first be faint with the aid of a telescope; its apparent path is in a south-easterly direction through Virgo, Libra, Scorpio, Sagittarius, and Capricorn.

KEKULÉ MEMORIAL LECTURE.

AT an extra meeting of the Chemical Society, held on Wednesday, December 15, Prof. F. R. Japp, F.R.S., delivered a memorial lecture in honour of the eminent German chemist, Friedrich August Kekulé, whose death occurred in July 1896. The lecturer said that Kekulé's supreme merit lay in his contributions to theoretical chemistry. His greatest achievements in this department were the doctrine of the linking of atoms in terms of their valency, and, growing out of this, the theory of the structure of organic molecules, both in open-chain and in closed-chain compounds. These were not recondite theories, hidden away in the depths of the science; they were organic chemistry itself, and were learnt by students on their first introduction to the subject. Kekulé acknowledged that his theories were based on Gerhardt's type theory, on Williamson's theory of polyvalent compound radicles and multiple types, and on Odling's theory of mixed types, which was a deduction from Williamson's theory. Less consciously, perhaps, his opinions were influenced by E. Frankland's theory of the valency of elementary atoms, and by Kolbe's speculations on the constitution of organic compounds. Kekulé developed these ideas, which he found scattered throughout the writings of his predecessors, added to them, and welded the whole into the coherent system which formed our present theory of the structure of organic compounds. In Kekulé's model of the carbon atom "the four units of affinity," to quote his own words, "radiate from the sphere representing the atom so that they end in the faces of a tetrahedron." This model was destined to play an important part in the development of theoretical chemistry; it was the foundation of stereochemistry. Kekulé's benzene theory was the crowning achievement, in his hands, of the doctrine of the linking of atoms; it was the most brilliant piece of scientific prediction to be found in the entire range of organic chemistry. What Kekulé wrote in 1865 had since been verified in every essential particular. Not only had the various substitution derivatives been discovered in the number and with the properties required by the theory, but various observations which appeared to contradict this theory had been proved erroneous. Moreover, the theory had shown itself to be capable of boundless development, and there seemed to be no limit to the fruitfulness of Kekulé's conception of closed chains or cycloids. The extensions of the idea, of which extensions Erlenmeyer's naphthalene formula and Dewar's formulæ for pyridine and quinoline were among the earliest instances, had gone on increasing in a rapid geometrical ratio, until, at the present day, the literature dealing with cycloids, although of so recent growth, was more than twice as voluminous as that of the paraffinoids. But even in the undeveloped state of the subject prior to Kekulé's theory, the facts were apparently so intricate and so unconnected that few chemists could claim to have mastered them. The theory appeared; the previously unmarshalled facts fell into their proper places; and not only this, but it was possible to say whether, in any given section of the subject, the facts were complete or only fragmentary. The debt which both chemical science and chemical industry owed to Kekulé's benzene theory was incalculable. As regards the former, three-fourths of modern organic chemistry was, directly or indirectly, the product of this theory; and as to the latter, the industries of the coal-tar colours and the artificial therapeutic agents, in their present form and extension, would be inconceivable without the inspiration and guidance of Kekulé's fertile idea. By the accuracy of his predictions he had done more to inspire a belief in the utility of legitimate hypotheses in chemistry, and had therefore done more for the deductive side of the science than almost any other investigator. His work stood pre-eminent as an example of the power of ideas.

RECENT RESEARCHES ON TERRESTRIAL MAGNETISM.[1]

II.

UP to this point we have regarded the system of magnetic forces in play upon the surface of the earth as constant. I have already hinted that this is not the case, and that the difficulties of our investigation are immensely increased by the fact that all the phenomena with which we deal are in a state of flux. Nothing is fixed from year to year, from day to day, from hour to hour. It is hardly too much to say that at times almost every minute brings with it changes which it is the business of the magnetician to investigate and explain. For the moment, however, I wish to fix attention only upon the secular change to which I have already referred. Not only does the angle which the magnet makes with the geographical meridian vary, but the dip also increases and diminishes in turn.

[1] The "Rede Lecture" delivered in the Senate House, Cambridge, on June 9, by Prof. A. W. Rücker, F.R.S. (Continued from p. 163.)