tion, or method of displacement?

6. What precautions are to be taken when such substances as squill or gentian are to be dealt with?

7. Give the tests for the examination of aqua distillata B.P.

8. In the preparation of extracts of belladonna and conium B.P., what is the purpose of heating the juice to 200° F.?

9. What kinds of incompatibility are there? Give illustrations.

10. Must a pharmacist always refuse to put up a prescription which contains incompatible ingredients? Comment on this.

CHEMISTRY—SECOND YEAR.

Examiner PROF. C. A. PEISTER.

1. How do monatomic alcohols form their aldehydes and acids?

2. Is the formation of ether, or ordinary sulphuric ether (so called), a simple phenomenon of dehydration of two molecules of alcohol?

3. Give the theory of the production of chloral.

4. What is the action of alkalies on chloral? What are the products?

5. What is a natural fat? A soap?

6. How may we ascertain the alcoholic strength of a complex liquid such as wine, beer, etc.?

7. Having an alcohol of 94 per cent. and $\triangle$ .8201, how is it to be diluted to make a spirit of 40 per cent. $\triangle$ .9519, pure alcohol having $\triangle$ .7946?

8. Explain the terms alkaloid, amine, phosphine, arsine, leucomaine, ptomaine. Give the formula of iodide of diethylpropylbutylammonium.

9. What weight of absolute alcohol will be produced by 100 parts by weight of glucose?

10. When may a ray of light be said to be polarized? Explain the terms levogyre, dextrogyre.

JUNIOR CHEMISTRY CLASS.

Examiner—PROF. JOS. BEMROSE, F.C.S.

1. What results when sulphuric acid and oxalic acid are heated together? How would you separate the products?

2. Give two methods by which acetic acid may be obtained; how would you detect SO_2 in it?

3. Describe the "Spectroscope"; of what use is it to the chemist?

4. Give the formula of the two chromates, and of the two manganates of potassium.

5. Also calculate their molecular weight.

6. Finish the following equations, $3Hg + 8HNO_3 =$ and $3Cu_2O + 14\ HNO_3 =$.

7. Name the following compounds: H_3AsO_4, H_3As, PCl_5, and $POCl_3$.

8. What is "Phosphine"? How would you make it? And what are its properties?

9. Given an aqueous solution containing KCN and K_2SO_4, how would you prove their presence in it?

10. How much ammonium nitrate would you require to make twenty litres of nitrous oxide?

SESSIONAL BOTANY EXAMINATION.

Examiners—PROF. BEMROSE, F.C.S., AND PROF. MORRISON, F.C.S., F.R.M.S.

1. Name the most important elements used in the nutrition of plants, and the forms in which they are taken up.

2. Draw a figure of the transverse section of an anther, marking the parts.

3. Describe the growth of an ovule up to the formation of the embryo sac.

4. Define the terms mycelium, ligule, gametophyte, scape, and versatile.

5. What is meant by cross and self-fertilization? Mention natural orders where each occurs.

6. Give diagnosis of the natural order liliacea, and show how it differs from the order iridaceæ.

7. What is the prothallium of a fern?

8. How do the three forms of dehiscence-loculicidal, septicidal, and septifragal differ?

9. What do you understand by hermaphrodite, monoecious, and dicecious flowers?

10. Name three examples of each of the following forms of fruit: follicle, achene, and capsule.

Curing Cracked Emulsions.

Benj. Shoemaker, in a note in the alumni report (*Phil. Coll. Phar.*), writes on the subject of "cracked" emulsions as follows: "I have always understood that when an emulsion of cod-liver oil 'cracked,' nothing further could be done but begin over and make another. I made an emulsion recently in my usual way (*i.e.*, take 1 troy ounce of powdered gum arabic to a pint, adding first 1 fluid ounce of the oil, and then 2 fluid ounces of water, all at once, and afterwards oil and water, until finished). I was in a hurry and added a little too much oil, and the emulsion 'cracked.' There was some alcohol to be used in the preparation, so I thought I would see whether that would restore the emulsion, and add about 1 fluid dram of it. It brought back the emulsion to its proper condition. I have tried this experiment again lately, with repeated success. Never having heard before of any remedy for a 'cracked' emulsion, and thinking that the matter might be of interest to some of your readers, I send the above note."

Mentho-Phenol as an Antiseptic.

By mixing 1 part of phenol with 3 parts of menthol and melting the mixture, a transparent fluid with an aromatic odor and taste is obtained; the sp. gr. is 0.973, the fluid is nearly insoluble in water and in glycerin, but dissolves readily in alcohol, chloroform, and in oils. It dissolves iodine, iodoform, and aristol. Schæfer finds that this body has strong antiseptic and analgesic properties. It may be used preparatory to cauterizing chancroidal sores and curetting necrotic surfaces. As a mouth wash 2 drops mixed with an ounce of aqueous menstruum may be advantageously employed. A case of abscess under the finger nail was painlessly lanced under a warm 5 per cent. aqueous solution of mentho-phenol, and rapidly healed when dressed with gauze containing 2 per cent. of the antiseptic. Equally good results were obtained in painful suppurating otitis media et interna. Wounds washed with warm 2 per cent. solution of mentho-phenol rapidly heal. In dental practice it is also useful, acting as a disinfectant and anodyne anæsthetic.—(*Boston Medical and Surgical Journal; Pharmaceutical Journal.*

The Protoplast Cell.

You have caught me at last and caged me, and think you can make me reveal
The secret of life's creation, of which I am sign and seal.
Ho, gauge me by lineal inches, scarce seen in your microscope;
I have clothed the earth with her beauty, plain, valley, and mountain slope.
When the world from incandescent gases congealed into form, I was there,
And the sea was without a tenant, the land was lifeless and bare;
But I bore the infinite promise of verdure, and flower, and tree,
I covered the living myriads that people air, earth, and sea.
I, the all-bearing mother, transmitter to all of life,
Have yet suffered no diminution, unfailing through stress and strife;
Protophyte even as mammoth, and each as the other complete,
In me finds its primal parent, in me all divergents meet.
You stand against increase of matter! Why not against increase of mind?
Since nothing is made out of nothing, can the higher growth be defined?
Or of life? Can life be created, or spring forth where none has been?
The word made flesh, if you trace it, comes only through me, I ween.
So you fail to perceive a radiant where higher and lower swerve!
You say that no sense of vision preceded an optic nerve.
In your wild unrest with the future, while trembling upon its brink,
You hesitate whether 'tis better to know or only to think.
And still I go on increasing the visible forms of life,
Fulfilling my primal function wherewith all creation is rife.
Still unchanged amid all time's changes, which carry an upward sway,
An impulse from simple to complex my offspring must all obey.
I know not a higher or lower throughout the length of the line,
Macro- or micro-cosm no nearer is to the Divine.
Protozoan, animal, vegetal, linked by unchangeable law,
Are equally interdependent for the vital breath which they draw.
From the inorganic is fashioned all living, how varied or fair!
What, though, it is only the garment which for a brief season they wear?
And even your leaders in science, who marshal life's orders up,
Make the summit and crown of the ages the child and the buttercup.

—*Alexander Laing, Glasgow, in Pharmaceutical Journal.*

CLEMATIS ERECTA IN ORCHITIS.—Clematis, known also as virgin's bower, like rhododendron, acts upon the testicles, and relieves orchitis, even of gonorrhœal origin.